AMERICAN
GAS JOURNAL
Established 1859 Pioneer of the Gas Industry

VOL. 1ST. No. 4. WHOLE No. 2645. NEW YORK, SATURDAY, JULY 23, 1927 Subscription, $3 Per Year $4 Canada $5 Foreign

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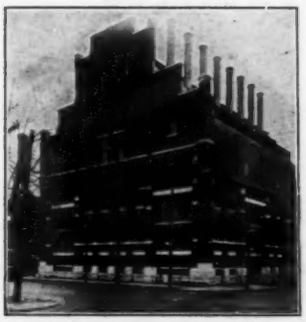

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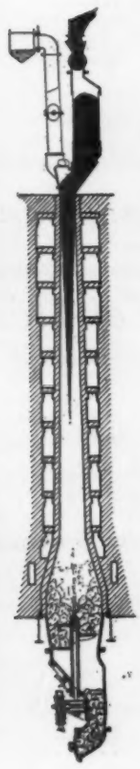

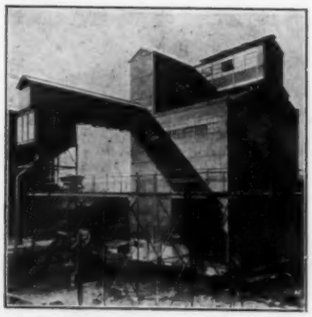

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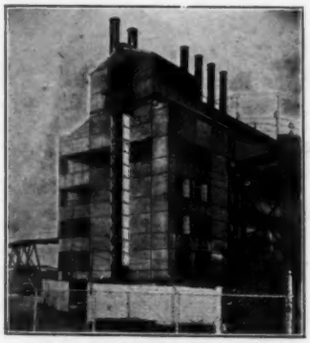

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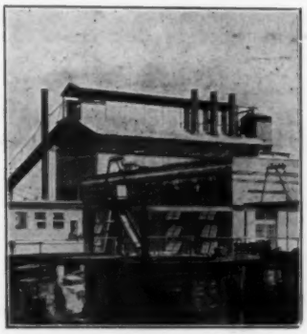

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American Gas Journal

SIXTY-SEVENTH YEAR

Published Weekly by American Gas Light Journal, Inc., 53 Park Place, New York, N. Y.
S. G. KRAKE, Pres. and Treas. A. M. GLEASON, Sec'y

STANTON G. KRAKE, Managing Editor HENRY M. RILEY, Editor
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Subscription $3.00 per year, including postage, in the United States, Mexico, Cuba, Porto Rico, Hawaii or the Philippines; in Canada, $4.00; foreign, $5.00—Single Copies, 10 cents.

AMERICAN GAS JOURNAL, JULY 23, 1927. Vol. 127. No. 4.
Published weekly by American Gas Light Journal, Inc., New York, N. Y.
Entered as second-class matter Jan. 9, 1917, at the post-office at New York, N. Y., under the Act of March 3, 1879.

AMERICAN
GAS JOURNAL
Established 1859— Pioneer of the Gas Industry

Vol. 127. No. 4 NEW YORK, JULY 23, 1927 Whole No. 3642

The Cost of Selling

Highly paid salesmen will lower the cost marketing appliances

J. E. Bullard

WE have arrived at the point where we can figure the cost of production with a great deal of accuracy. Not only can we figure the cost under the present methods, but there are data, formulae, slide rules, etc., especially adapted to figure the method which will result in the lowest possible cost of production as far as the mechanical end is concerned. We have not developed quite so far on the human end, but are making some progress in this direction.

There are comparatively few salesmen who are praised for results when they are putting forth their best efforts. The praise comes when business is so easy to get that they don't have to work for it. Any salesman with any extended experience in selling knows that this is the case.

This fact in itself indicates how little actual knowledge there is in regard to selling. There is considerable ignorance in regard to the conditions that regulate sales. There is far too little knowledge in regard to the most effective selling methods.

Greater Earning Lowers Cost of Selling

Progress is being made, but it seems slow and is often very discouraging to the selling force. There is one thing, however, that is being proved, and that is the more the individual salesmen and the sales-manager earn the lower the cost of selling.

If gas companies were paying their salesmanagers ten, twenty or even more thousands of dollars a year, and if they had no salesmen on their staffs who earned less than $100 a week, selling costs would be lower than they are today.

This may seem like an extravagant statement, yet it can be proved by logic and by actual experience. All that is necessary is to make certain that each man earns what he gets and then leave off the lid and let him earn all that he possibly can. Not only let him earn, but encourage him to earn even more This is a policy diametrically opposed to that sometimes pursued, not only in the public utility business, but in other fields as well. Yet those concerns that have had the courage to allow their salesmen to make all the money these salesmen can possibly make have prospered to a truly surprising degree and selling costs have gone down to an almost unbelievable degree.

The first essential is to determine a fair method of compensation, and that must be some sort of commission basis based upon the profit margin of the goods sold. Once an equitable method of compensation has been determined upon, there is no reason why the earnings of any man should be arbitrarily limited. The more he earns the more the company will earn, and the company's earnings go up at a faster rate than do his earnings. This is due to a number of factors entering into the cost of selling.

Overhead Factor

One factor in the cost of selling which is given far too little attention is the overhead factor. At first thought it might seem that with all men working on a commission basis and all receiving the same rate of commission, the sales volume per salesman would not make any difference in the cost of selling. However, as a matter of fact, it does make a great deal of difference.

The cost of supervising salesmen, of keeping sales records, and other fixed costs relating to salesmen is determined by the number of salesmen. If ten men can be found to do the work of fifty, then it is not going to cost nearly so much to supervise and keep records as it did with the fifty men. As a matter of fact, it probably will cost less than a fifth as much. The better the salesman the less it costs to direct his efforts. There are a number of costs that are fixed by the number and the ability of the salesmen employed. The smaller the number of salesmen and the greater their ability, the smaller

these costs. The greater the number of salesmen and the less their ability, the higher these costs.

This means that the gas company employing high grade salesmen, men with large earning capacities, who are permitted to earn up to their full capacity, is going to have lower selling costs than the company hiring men of only average ability or even less than average, who have not great earning capacity and perhaps are not urged to earn up even to that capacity. You can get high efficiency either from a machine or from a man without operating at full capacity.

Efficiency Varies With Different Loads

Study the efficiency curve of a steam engine, and it is evident that there is a great deal of difference in the efficiency at different percentages of full load. If we could always run our automobile engines at full load it would be an easy matter to get double the miles for each gallon of gas consumed.

Much the same applies to salesmen. When salesmen are working at their full capacity the results obtained require less money per unit of accomplishment. But to get them to work at full capacity they must be paid for full capacity effort.

There is another reason, however, why it is more economical to employ salesmen who earn considerably above the average, why it is economical to adopt methods which will make it compartively easy for a salesman to earn more working for the gas company than he can earn in any other field. This is the labor turnover.

It is an extremely expensive proposition to change salesmen. It has never been figured out with a high degree of accuracy what it costs a gas company to discharge one salesman and hire another, to have a salesman leave the company and have to replace him, or to change sales managers. Nevertheless, figures that have been compiled in connection with other types of labor turnover would indicate that a change in salesmen cannot be made at a cost of less than $500. The probability is that the cost i higher than this. It has been definitely figured that before the war it cost at least $150 to "fire" a machine hand and hire another. It costs more than that to change salesmen, because there are factors of expense in selling that are not to be found in so closely regulated and supervised work as that of the machinist. In addition to that, costs are higher now than they were before the war. So $500 for each change in salesmen does not seem too high a figure.

Cost of Changing Salesmen

If there are ten salesmen on the force and five of them are changed in the course of a year, then the cost of making changes will be not less than five times five hundred dollars, or $2,500, which is an item worthy of consideration in a force no larger than this. Yet there are probably sales forces where costs of this kind are being met every few years without any idea of how high these costs are.

Unless the men on the force can make a better living working for the gas company than they can working for any other concern, there is bound not only to be a high rate of labor turnover, with its consequent high cost, but the highest type of salesmen will not be attracted, and this brings up another item of cost. In the long run the best salesman is the cheapest salesman, no matter how much he must be paid.

Any person can make a certain number of sales by merely going from prospect to prospect and asking them if they want to buy. Some people will be ready to buy; will have already planned to go into the gas office and make a purchase if no one comes around to take the order.

Order Takes

Salesmen who make poor records and have small earnings are the kind who get this kind of business. They are order takers and not salesmen. The gas company could get just as much business with no salesmen at all if it used advertising and window displays effectively. As a matter of fact, if it dispensed altogether with salesmen and used the commission previously paid the salesmen to employ an expert window display man and expert advertising counsel, the chances are it would do two or three times the volume of business.

It is evident then that the mediocre salesman is an expense. No net returns are being secured from him. The money paid him is really charity, and perhaps it is because such has been the case too frequently in the public utility business that there has grown up a tradition limiting the amount that should be paid salesmen.

On the other hand, however, suppose we have a salesman capable of earning a good living. For the sake of a specific example, suppose he earns a hundred dollars a week in commission.

Now it is obvious that no man can earn this much by merely going around taking orders. He must do some real selling. He must convince prospects they should buy what he has to sell. He must persuade them to use more gas. No matter how good the advertising being done, how effective the window displays, such a salesman is going to bring in business that could be obtained in no other way. He is a real salesman, and because he is actually increasing the send-out his efforts are worth while. Only when men of this type are employed as salesmen can the actual selling cost be kept down.

Difficult to Determine Selling Costs

It is not an easy matter to determine the actual selling costs. In the case of a gas company the volume of business done in appliances is not the only factor to consider. The increase in the volume of gas sold is another that has to be taken into consideration, but the increase this year over last year may not be a fair basis of comparison. What is fair is a comparison of what is sold this year with what would have been sold if there had been no

sales effort, and this figure is by no means an easy one to find.

There are times when, with records that do not seem good, salesmen may be doing more valuable work for the company than when their records look much better. It is the conditions existing in the territory that determine how effective men are working and up to date no way has been found of expressing these conditions accurately in figures.

One thing, however, has been demonstrated, and that is, it does not pay to employ salesmen who earn small amounts each month. The less the salesmen are paid the higher the selling cost and the more they are paid the less the selling cost, where the same basis of compensation is employed. As a matter of fact, it even pays to increase the rate of compensation as the salesmen's earnings go up. If he is paid a certain rate of commission up to earnings of fifty dollars a week, then he can safely be paid a higher rate on all business done above that point. If he earns more than seventy-five dollars a week, then it is economy to pay him a still higher rate to go above this point. The more the men earn, the more actual selling they do and the greater the returns the company gets.

It is well to bear in mind that no engine will carry a full load with the throttle closed down. It must have a full load supply of fuel if it is to supply a full load of power. The same is true of salesmen. You can't get full load results with half load pay. The pay must be full load or the salesman will not put forth his greatest effort. The less the effort he puts forth the more he costs the company, even though he is being paid nothing but commission. These are absolute facts that nothing can change.

There is another thing also to bear in mind. It is easier to get high efficiency out of a 60,000 horse power steam turbine than out of a 10 horse power simple reciprocating engine. It is also easy to get efficient results out of a salesman able to earn one or two hundred dollars a week than it is to get efficient results from a salesman who has difficulty in earning twenty-five or thirty dollars a week. This is not always admitted, but it has been demonstrated in a number of men both in and out of the gas business. If you are going to get dollars out of selling then you must put dollars in and not dimes and nickels. With dimes and nickels there is too much danger of getting back nothing but pennies and slugs.

Direct Gypsum Process of Ammonium Sulfate Recovery*

H. W. Jackman

Battle Creek Gas Co.

Holder of M. G. A. Fellowship, University of Michigan

THIS report covers the work done for the Michigan Gas Association during the last year on the production of ammonium sulfate from gas liquor and gypsum.

This work was begun in the fall of 1925 and reported at the Michigan Gas Convention last year. In that report we stated that we could produce ammonium sulfate from ammonia and gypsum by two processes. The first, or indirect, process consisted of recovering ammonia as weak liquor in the ordinary way, concentrating in a still, carbonating the concentrated liquor with carbon dioxide gas, and agitating with finely ground gypsum with formation of a calcium carbonate sludge and a solution of ammonium sulfate. The sulfate was recovered by filtering off the sludge and evaporating down the solution.

The second, or direct, process consisted of passing the gas directly from the tar extractor through a packed absorption tower counter-current to a solution of gypsum in water. The ammonia and carbon dioxide were absorbed from the gas, reacting with

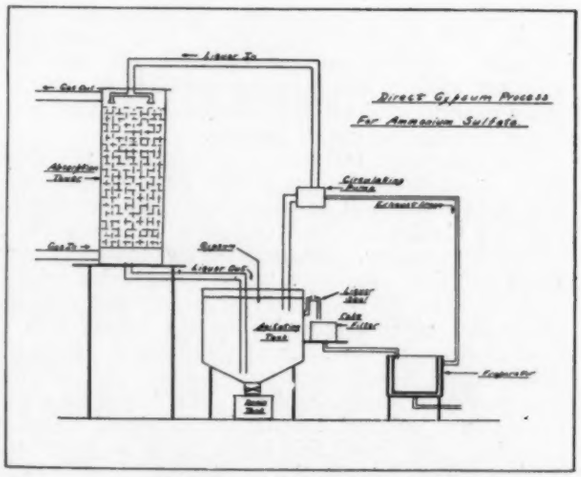

Diagram of Battle Creek Plant

*Read at annual meeting Michigan Gas Assn., Mackinac Island, July 5-7, 1927.

the gypsum to form ammonium sulfate, with subsequent recovery of this sulfate from the solution by evaporation. The chemical equation in both cases being

$$2NH_3 + CO_2 + H_2O + CaSo_4 = (NH_4)_2SO_4 + CaCO_3.$$

Direct Gypsum Process and Its Operation

This direct process showed very good results in the laboratory, and it was thought that if it could be made to work on a commercial scale it would be especially good for use in small gas plants where it was desired to recover ammonia in a salable form. Consequently, that we might try out this process on a larger scale, we built a plant at Battle Creek capable of handling from one to two hundred thousand feet of gas in twenty-four hours.

This plant consists of a 25-foot length of 24-inch gas pipe packed with terra cotta spiral rings, and used as an absorption tower, a 500-gallon iron circulating tank in which the gypsum is added and dissolved, a circulating pump, and a porcelain lined, cast iron pot of 27-gallon capacity for evaporation.

As the gas passes through the absorption tower, ammonia and carbon dioxide react with the gypsum, removing it from the solution, and allowing more to dissolve, so that the solution gradually builds up in strength with ammonium sulfate.

The circulating liquor is drawn from near the top of the tank and is fairly free from suspended material. After passing through the absorption tower this liquor is discharged into the bottom of the tank in sufficient quantity to keep the entire solution in motion and act as an agitator for the gypsum.

The gas is also cooled to about 70 degrees in passing through the absorption tower, and so condenses out a considerable amount of water. As the water condenses it collects in the circulating tank and overflows through a seal and coke filter into the evaporating pot. Here the ammonium sulfate is evaporated out of the solution by means of exhaust steam from the circulating pump. The overflowing solution contains only about 3.75 per cent ammonium sulfate, and it is not possible to obtain a more concentrated solution because of the amount of water condensing out of the gas.

The automatic features of the process are easily seen. The faster the gas passes through the tower, the more water will be condensed, thus keeping the solution always at about the same concentration of ammonium sulfate. The solution automatically overflows into the evaporator, which operates on exhaust steam, and as the evaporator becomes filled, evaporation takes place faster due to the larger area of contact between the sides of the pot and the liquor.

We found it necessary to evaporate this solution in a porcelain lined container. We first tried a cast iron, steam jacketed evaporating kettle of 27-gallon capacity. We found this kettle to be large enough to just nicely handle the condensate from 100,000 cubic feet of gas per twenty-four hours, but the hydrogen sulphide in the solution attacked the cast iron kettle, forming black iron sulphide, which discolored all the ammonium sulfate. To overcome this we had the kettle lined with enamel and found that in this way we could obtain a nice colored salt.

We also found that this evaporation could be easily accomplished by exhaust steam from the circulating pump. I do not know at just what pressure the steam was used, for it exhausted directly from the pump into the steam jacket of the evaporator, and discharged from there through an open quarter-inch pipe.

We are convinced that this apparatus can be made to work both chemically and mechanically on a commercial scale. The chief trouble with the process as just described is the high loss of ammonia. This loss is due, first, to that ammonia which is not absorbed by the gypsum solution; secondly, to that which is absorbed but not combined to form sulfate, and finally, to that which is drawn off and discarded with the limestone sludge.

Unabsorbed Ammonia

The first, and greatest, loss, that ammonia not absorbed by the circulating gypsum solution, varies directly with the temperature of the absorbing solution, but is practically independent of the initial concentration of ammonia, and of the rate of flow of gas through the tower. At 60 degrees there remain unabsorbed 28 grains of ammonia per 100 cubic feet of gas. At 72 degrees there are 61 grains, and at 86 degrees there are 81 grains. Our entering gas contains only 165 grains per 100 cubic feet, which means that at 60 degrees there is 17 per cent of the ammonia unabsorbed, and at 72 degrees 37 per cent.

Thus to have the best absorption conditions we must keep the solution as cool as possible. It is not feasible to cool by circulation of the solution through closed pipes because of the large amount of suspended matter. We placed cold water coils in the circulating tank and lowered the temperature somewhat, but the cooling still remains a hard problem.

One other condition affecting the amount of ammonia unabsorbed is the percentage of volatile ammonia in the absorbing solution. That is, as the percentage of volatile builds up, a larger amount of ammonia gets by unabsorbed. This leads one to believe that the reaction takes place in two steps, first the absorption of ammonia and carbon dioxide from the gas by the water, and next the reaction between these absorbed gases and gypsum. This in turn may be due to the small concentration of gypsum in the solution due to its low solubility in water, and slow rate of dissolving.

Volatile Ammonia and Ammonia Lost in Sludge

This volatile ammonia is itself the cause of the next largest loss in the process. The absorbing solution builds up to about 1 per cent volatile ammonia, and as this solution overflows and is evaporated, all volatile products are lost. Our results show that about 20 per cent of all the ammonia absorbed was lost in this way.

We tried to lower this volatile content by passing stack gas of 14 per cent CO_2 content through the solution, in the hopes that excess CO_2 would speed the reaction between ammonia, carbon dioxide, and gypsum. This was partially successful and did lower the volatile content slightly, and would probably have had a more marked effect if we could have passed the stack gas through a deeper seal.

The other loss which we had in our plant at Battle Creek was due to our method of removing the sludge. Twice each day we would drain the sludge, along with a large amount of liquor, out of the bottom of the circulating tank into a smaller receiving tank, and after letting the sludge settle to the bottom, the liquor would be pumped back into the system. As we had no filter or way of washing this sludge, considerable ammonium sulfate was undoubtedly lost in this way.

Remedies for Losses

These three sources of loss, if not corrected, would render the process uneconomical. However, all of these losses can be stopped by use of some extra apparatus.

The ammonia which is not absorbed by the solution, while large, is not as large as the amount which ordinarily is removed in the intensive ammonia scrubber. Our intensive scrubber at Battle Creek removes about 100 grains per 100 cubic feet of gas. Thus in a plant large enough to afford an ammonia still it would be possible to place a cold water scrubber directly following the gypsum scrubber, and to distill this absorbed ammonia back into the gas inlet line, where it would increase the ammonia concentration of the inlet gas, and also increase the percentage of the total ammonia asorbed by the gypsum.

For good sulfate yields a still is necessary in any sulfate plant to recover the fixed ammonia and that part of the volatile which is removed in the hydraulic main and the primary cooler. This ammonia should also be distilled into the inlet gas main, giving an ammonia content of 330 grains or more per 100 cubic feet.

Assuming operation under these conditions, with the gas leaving at 60 degrees, and remembering that the amount of ammonia unabsorbed is practically independent of the initial concentration, we would have gas entering at 330 grains and leaving at 30 grains per 100 cubic feet, or an absorption of 91 per cent.

The volatile ammonia in the sulfate solution could also be easily saved by evaporation of the overflow solution in a closed evaporator. Probably the most economical method would be to evaporate in a vacuum kettle, condense the vapors, and run them through the still. In this way all the volatile ammonia would be recovered.

The only other loss, that of ammonium sulfate in the limestone sludge, can, of course, be recovered by filtering and washing the sludge. It is doubtful if it would pay to thoroughly wash the sludge because of the amount of wash water that would have to be evaporated.

With these four additions, scrubber, still, vacuum kettle and filter, it would be possible to completely recover the ammonia. I do not believe it would be economical in a small plant because of the added investment and labor, but in a larger plant these items would be of lesser importance.

Test Run and Distribution of Ammonia

We made a test run at Battle Creek over six days, scrubbing 511,800 cubic feet of gas, and obtained the following results. Remember that here we did not have any of the refinements just described:

Gas scrubbed	511,800 cu. ft.	
165 gr. NH_3 per 100 cu. ft.		
Recovered	246 lbs. sulfate	
Equivalent to	63.3 lbs. NH_3	
Ammonia recovered per 100 cu. ft.	86.5 grains	
Recovered as sulfate per 100 cu. ft.	86.5 gr.	52.4%
NH_3 unabsorbed (65 degrees)	30 gr.	
Vol. NH_3 lost in overflow solution (1% Vol.)	30 gr.	
NH_3 lost in sludge, determined by difference	18.5 gr.	
Total loss	78.5 gr.	47.6%
Total NH_3	169 gr.	100 %

The ammonium sulfate that was recovered had a light gray color and was of marketing quality. The crystals were fairly large and quite uniform in size. We had some trouble with the salt caking, but this was due to having no good means of drying it.

I am sure that if we had had a centrifugal dryer and could have thrown out the mother liquor, we would have had a perfectly white salt. As it was, some of the salt that was allowed to drain especially well was very white and, in fact, had a better color than is often found in commercial sulfate.

We also experimented in the laboratory with absorbing the coloring matter from the solution before evaporation. Powdered charcoal did not have any appreciable effect on the solution, but Fuller's earth absorbed most all of the color.

Possibilities

This process of absorbing ammonia directly from the gas by gypsum was not as successful as we had at first hoped it to be. We showed, however, that it could be done on a semi-commercial scale with formation of a salable salt.

As we have brought out, our idea first was to develop a process for use in small plants where any other process now in use would be out of the question. The trouble we encountered was high loss of ammonia, so that with an entering ammonia content of 165 grains per 100 cubic feet we had a recovery of only 52.4 per cent of the ammonia. This is a low per cent of recovery, but in combination with a still and other added refinements, complete recovery could be obtained.

Without these added features very little labor is required and practically the only cost of operation is for gypsum, for steam for circulating the liquor, and for a foreman's or chemist's supervision. With

the still and other additions the recovery would approach 100 per cent, while the investment and operating labor would also be higher. Just how much this would be, and how the cost would compare with the other processes now in use, could only be determined by a more complete setup than we have been able to use.

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THE HOUSEHEATING LOAD—ITS POSSIBILITIES AND EFFECTS*

By J. F. Woolfenden,

Superintendent Pressure Department, Detroit City Gas Company

THE object of this paper, as implied by its title, is to deal chiefly with the possibility of acquiring a substantial househeating load, and the effect of such a load upon the distribution system and the manufacturing plant facilities necessary to provide sufficient gas to carry the househeating load as it may be pyramided upon the existing load.

The problems involved in this study have been discussed under three major sub-divisions:

1. Consideration of experience with existing installations and the value that this experience will have upon securing additional househeating business.
2. Studies of the installations with which we have had experience with respect to the effect of the househeating load upon the distribution system.
3. Plant capacities necessary to adequately meet the requirements of a sendout based on the assumption that the househeating load will become an important factor in the future of the gas industry.

Gas for househeating is now considered a desired feature in the home. It is not cheap. Sales departments in all parts of the country say that it should not be sold upon the basis of first cost of installation, or upon the basis of economy as compared with solid fuels.

Reasonable to Expect Househeating Will Spread

The desire for househeating with gas is first realized by those who can easily afford it. As the better and more comfortable type of automobile has supplanted the cheaper and less comfortable type to a great extent, it is well within the realm of possibility to expect on the part of the public a desire to heat their homes with the facilities and fuel which will render the most comfortable condition with the maximum of cleanliness and least possible inconvenience. The old adage that a "luxury today is a necessity tomorrow" has held true in the case of the innovations which were all at one time classed as luxuries. Even radio has now been put in the class of a near-necessity.

The difficulties experienced in obtaining good solid fuels, the accompanying discomfort and dirt about the premises to get solid fuels into the fuel bin, to handle them into the furnace, and to dispose of the ashes, etc., have been used as sales arguments in the establishment of many oil burning installations. The uncertainty of price, the inability to control the quality of oils delivered for househeating, damage done by leaks in oil storage and piping systems, and losses due to inefficient adjustment in the consumption of the oil are rapidly making a demand for gas househeating. Practically all of the present users of oil for househeating are potential prospects for gas.

The price of fuel oil in Detroit during the winter of 1925-26 averaged 8½c. per gallon. Last winter it averaged 10½c. per gallon. There is every reason to believe that the price of oil will increase in the future. The United States Oil Conservation Board has issued a warning that the known oil fields in the United States hold oil enough to supply the demand for only the next six years. The price of oils for househeating will undoubtedly materially increase but the quality will decrease within the next few years.

It has been stated that gas for househeating will be used only by those whose annual incomes are at least $5,000. This may be true of the present. Better insulation in houses, together with storm sash or proper weather stripping, preventing heat losses as much as possible, will greatly reduce the cost of heating. This will widen the field for gas househeating. As a result of better insulation, conditions in houses will also be much improved during the hot periods in the summer. It is not entirely outside the realm of possibility to expect house cooling in the summer by gas as well as househeating in the winter by gas.

Consideration of Experience

The average consumption of 73 installations in Detroit which were using gas throughout the season just passed, amounted to 804,000 cu. ft. The average seasonal consumption of 17 typical, but relatively smaller, installations was 750,000 cu. ft. The average seasonal consumption will probably drop as the field broadens. The number of extremely large consumers will be small in comparison with the total. It can be expected that the installations in the future may not be confined to small isolated areas in the high class residential districts, but may spread out more or less uniformly throughout the middle class areas.

Diversity Factor—Load Factor

The 1925 proceedings of the American Gas Association, page 1070, define "Diversity Factor" as the "ratio of the sum of the maximum demands of the parts of a system to the maximum demand of the whole,'" and "Load Factor" as "the ratio of the actual volume to the possible volume that could flow if the specified maximum demand continued during

* Read at the annual meeting of the Michigan Gas Association, Mackinac Island, July 5-7, 1927.

the whole interval, and should be expressed in per cent." They define "Demand" as the "instantaneous rate of flow of gas within the period of time expressed. For all periods of one hour or less the demand is expressed as the number of cubic feet which would flow in one hour if the average rate of flow for the prefixed time designation should continue without variation during one hour."

This paper has primarily been set up as a presentation of a study that has been made of typical house-heating installations in Detroit during the winter of 1926-1927, and this study forms the basis for consideration of the effects of the househeating load upon the distribution system and plant capacity. The information upon which this study was based was obtained during the past winter from daily charts collected from 23 demand meters which had been placed in representative installations, and also from the consumption of 73 installations which were in operation throughout the season.

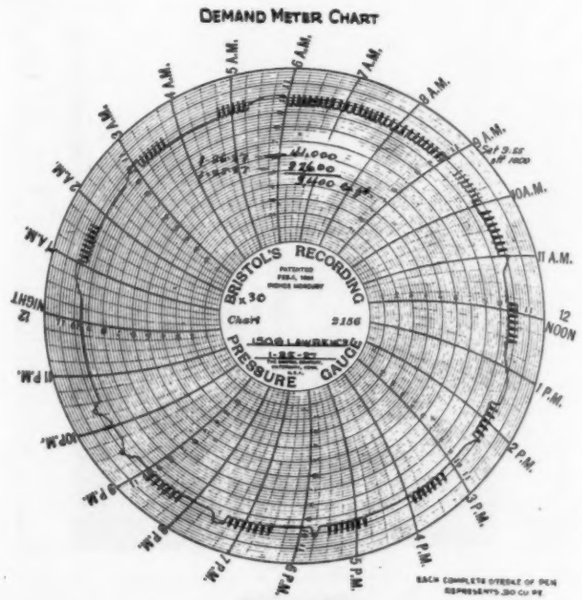


EXHIBIT #1
DETROIT CITY GAS CO.

A specific study was made of the data taken from the charts from the 23 demand meters to arrive at the co-incident demand and diversity factors when outside temperatures were at zero, 20°, 30° and 40° above zero, Fahr. (A sample demand meter chart is shown as Exhibit No. 1.)

What happens when the thermometer registers zero is shown on January 15, 1927, when an average temperature of 1 degree F. and a minimum of —3 degrees F. prevailed. This was the coldest day of the year. The coincident hourly demand of 17 installations was 5,550 cu. ft. and the non-coincident demand was 6,145 cu. ft. per hour, giving a diversity of 1.11. (See Exhibit No. 2.)

Although 23 installations were under test, it was not possible to obtain charts from all of them as in some cases people were away, in which cases charts could not be obtained until later and these charts would show the markings for two or more days, making it impossible to accurately read them.

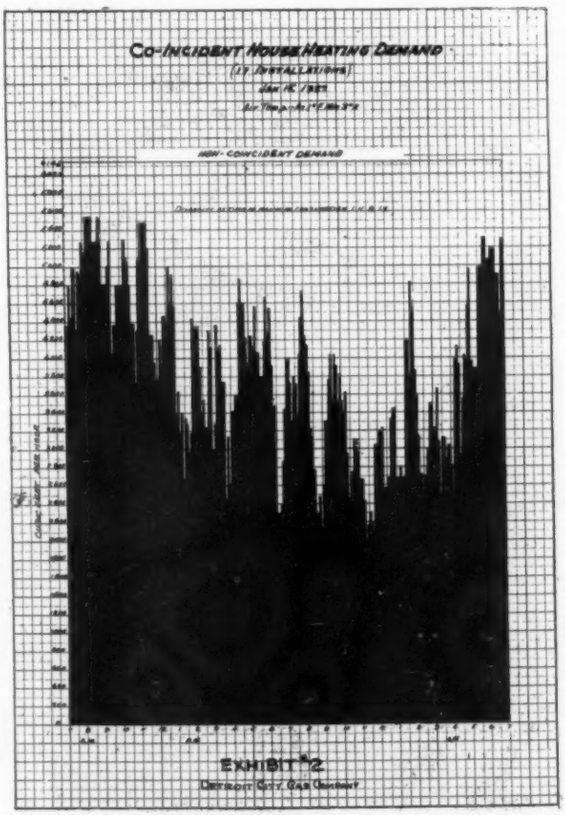


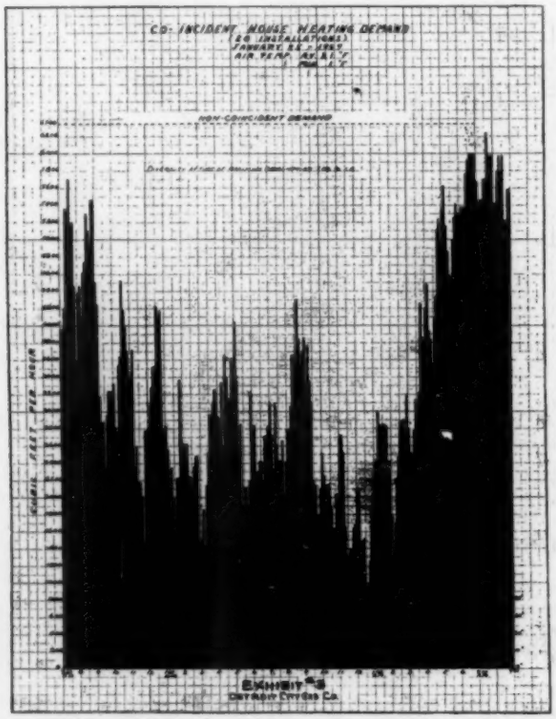
EXHIBIT #2
DETROIT CITY GAS COMPANY

Another interesting and valuable observation is to be noted from the sudden drop in temperature experienced on January 25 and 26 which is pertinent to the study of the househeating problem:

Results of High Wind

On January 25, with an average temperature of 21 degrees F., but with a variation in outside temperature of from 34 degrees at 2 P. M. to —1 degree F. at 6 A. M. on the 26th, using charts from 20 installations, the co-incident hourly demand was 6,000 cu. ft. with a non-coincident demand of 6,340 cu. ft. per hour. This condition lasted one hour and occurred between 6 A. M. and 7 A. M. on the 26th. The diversity in this case was 1.06. It was also noted that for a period of 10 minutes between 7 A. M and 8 A. M. the co-incident demand amounted to 6,240 cu. ft. (See Exhibit No. 3.) A high wind was blowing at the time, and probably was a prime factor in creating the conditions which existed. As a matter of fact, however, almost all cold spells are ushered in with a high wind. The particular point of interest is, that the co-incident demand almost equaled the total connected load of the househeating installations.

A question may arise as to why the connected load of 17 installations was 6,145 cu. ft. and the connected load of 20 installations 6,345 cu. ft., a gain of only 200 cu. ft. for three installations. It was found necessary to remove the demand meters from some of the houses between January 15 and 25 on account of difficulty in getting access to change the charts daily. These meters were placed on other installations.



It is hardly necessary to state that we must provide for such conditions as occurred on the 25th and 26th of January. In taking on a househeating load, the responsibilities incurred by the gas companies are far greater than any which they have heretofore assumed, and in designing plant and distribution systems, capacity must be provided to adequately meet such a situation as is set up here.

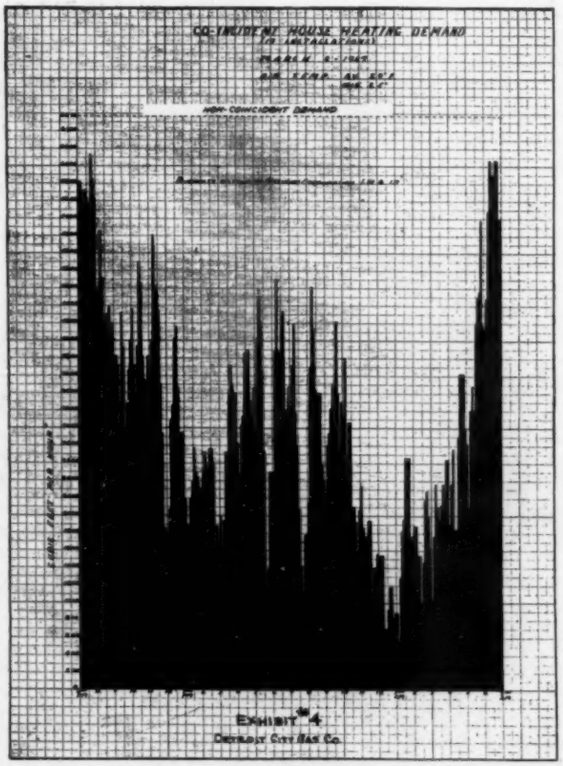
A study of the records made shows that the maximum househeating load peaks occur between 5 o'clock and 9 o'clock in the morning, a time when the ordinary load is not at its maximum.

Conditions At Higher Temperatures

Exhibits No. 4 and No. 5 show conditions of load on days of higher temperatures. It will be noted that on March 2, with an average outside temperature of 29 degrees F., the diversity amounted to only 1.07. With an average temperature of 40 degrees F., as shown on Exhibit No. 5, the diversity was around 1.3.

Outside temperatures on the four days graphically described in Exhibits Nos. 2, 3, 4 and 5 are shown on Exhibit No. 6.

Before proceeding with the development of the methods for reinforcement of the distribution system, an analysis of the types of appliances used in the 23 installations examined is presented as it may have considerable effect upon the rates of demand and diversity. Of these 23 installations, 3 were warm air, 2 hot water, and 18 were steam. In analyzing those installations in which demand meters were placed, we find that during the period of from 7 A. M. to 10 P. M. on the coldest day of the year, January 15, a study can be made of 17 installations of which 12 were steam, 2 hot water, and 3 warm air. A review of the performance of the 12 steam installations is as follows:

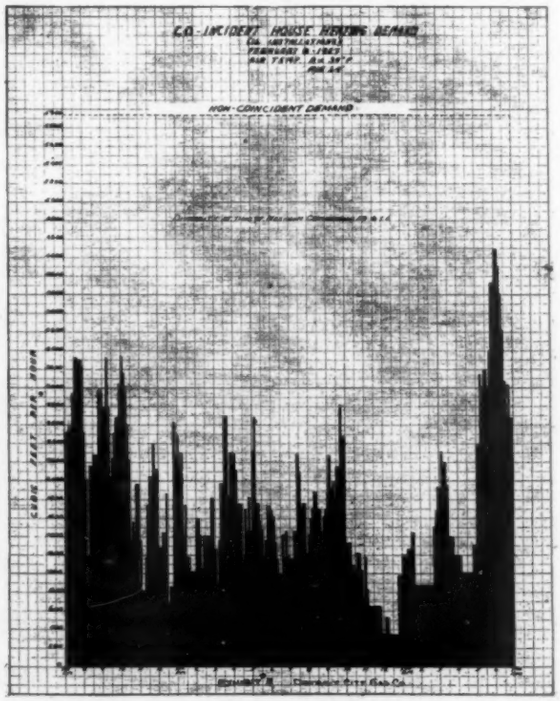


A study of the number of hours during the 15-hour period from 7 A. M. to 10 P. M. when the burners were on and the number of hours when they were off, might give an indication as to whether or not too much capacity had been installed. It is obvious that the daily load factor would have been improved had the burners been on in some cases for a longer period of time with consequently a smaller demand rate, which is desirable, provided, of course, temperatures in the house can be maintained.

Steam Installations

No.	Hours Using Gas	Hours Not Using Gas	Design of Layout made and installed by
1.....	12½	2½	Gas Company
2.....	12½	2½	Gas Company
3.....	7¾	7¼	Others

No.	Hours Using Gas	Hours Not Using Gas	Design of Layout made and installed by
4.....	8¾	6¼	Gas Company
5.....	10½	4¾	Gas Company
6.....	1	8	Others
7.....	11½	3½	Others
8.....	9¼	5¾	Others
9.....	7¼	7¾	Others
10.....	10¼	4¾	Gas Company
11.....	12½	2½	Gas Company
12.....	11¾	3¼	Gas Company
Average....	121¼	58¾	



No. 4 installation was equipped with a type of radiator cabinet. which resulted in insufficient radiation.

No. 8 is a Special Cork insulated house.

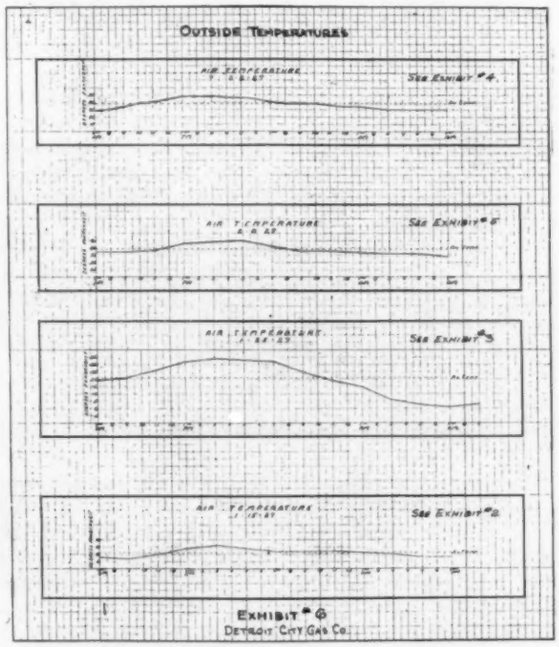
For all installations:

Time on 67%
Time off 33%

It will be noted that three of the steam installations put in by others than the gas company are undoubtedly considerably oversize. No. 4, put in by gas company is also oversize, other special conditions surrounding this installation making this procedure desirable. It will be noted that in a number of installations, referred to above, gas was used for about 83 per cent of the 15-hour period and was off only 17 per cent of this time. Unfortunately in none of these installations did we have a continuous record of temperatures within the house. We have been assured, however, that during this minimum day temperatures were satisfactorily maintained in the house, and therefore assume that on the day of minimum temperature it is possible to have gas being consumed as much as 83 per cent of the time and be reasonably sure that the temperature inside is maintained.

Oversize Installation Gives Poor Load Factor

Heat losses, radiation, etc., were in these cases determined by the contractor who sold this job. From a study of the well designed installations it is probably fair to assume that a furnace should not be off on a cold day more than 20 per cent of the 15-hour period as a factor of safety. The oversize installation, of course, results in an unnecessarily high demand rate, giving a poor load factor, and throwing an entirely unwarranted load on the low pressure mains and services of the distribution system.

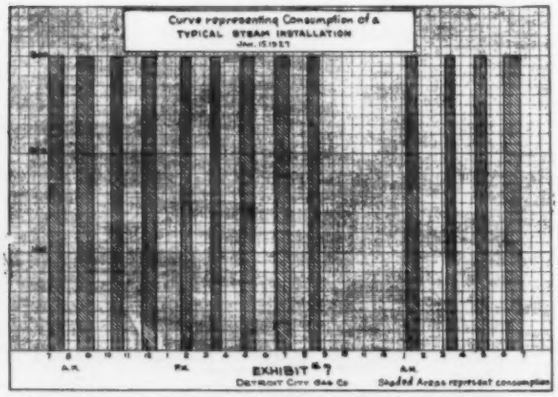


It is important for the company to either so cooperate with the heating contractors that proper size installations are put in, or to specify the size of all installations ourselves. This, of course, is almost impossible in the larger cities. We have had cases in Detroit where installations have been put in without our knowledge and the first intimation we would receive would be when a larger meter was ordered.

A 24-hour curve of consumption for a typical steam installation is shown in Exhibit No. 7.

Further, it is desirable to have oversize radiation with a heating plant of the correct size rather than undersize radiation with an oversize heating plant, or with a heating plant of the proper size. The latter condition results in building up of pressure in the piping system, causing the gas to alternately turn on and off at frequent intervals.

Consumption curves of the hot water installations were similar to the curves taken from the steam installations.



In Detroit there were only three warm air installations in use during the past winter. We find a much better diversity factor for these three installations than for the steam and hot water. On January 15 the co-incident demand of the three installations was 750 cu. ft. and the sum of the non-coincident demand was 930 cu. ft., giving a diversity factor of 1.24. On January 25, the coincident demand was 690 cu. ft., giving a diversity factor of 1.35. It would appear that the diversity factor could be improved by the installation of a large proportion of warm air furnaces. (See Exhibit No. 8.)

Warm Air Installation Economical

The great advantage of the warm air installations is that part of the consumption is always on. We find from our limited experience in Detroit that the well-designed, well-installed warm air installation is most economical to operate both from the standpoint of the consumer and of the company. It is questionable whether or not it would be efficient or economical to arrange a steam installation where part of the burners are always in operation, although this might be done in the case of the hot water installations.

For calculating heat losses, radiation area, etc., the househeating reference book prepared by the American Gas Association appears to be satisfactory. From our experience we believe the methods advocated are reliable.

Briefly, our experience has shown that in order to obtain as favorable a distribution load as possible, the following items should be carefully considered:

1. Insulation of houses, and installation of storm sashes and double doors to reduce the demand.

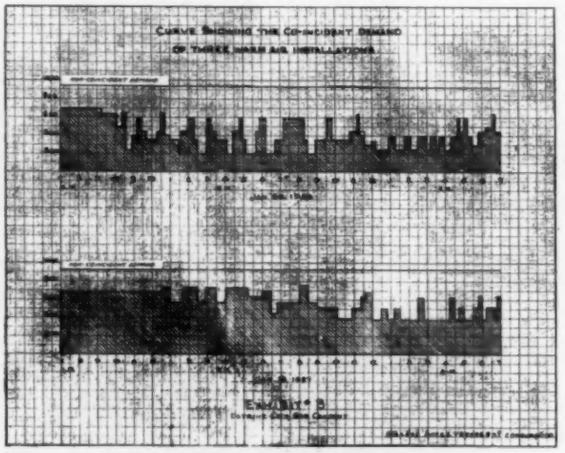
2. Heater capacity should be of a size to meet the most severe requirements. In Detroit heating installations are designed for temperature to —10 deg. F. They should not be too much oversize. We must co-operate with the heating contractors with this point in mind.

3. Liberal use of radiation is desirable.

4. Educate the public in the use of warm air installations as they appear to be more economical from customer's standpoint and show a better diversity factor from the gas company's standpoint. Warm air installations equipped with automatic humidifiers create more healthful conditions in the home.

5. In calculating heat losses, radiation and boiler capacity, the American Gas Association reference book on househeating, which was found to be very accurate, may be followed.

6. It has also been our experience that it is advisable to have heating contractors confer with our men on questions of checking heat losses, radiation required, etc., and also to determine gas pressure and main supply conditions. The average heating contractor is accustomed to figure in varying percentage of excess coal fired boiler capacity over advertised rating, and he is inclined to do the same thing for gas fired boiler requirements.



7. We have found that it is not only advisable, but necessary, to check up the existing heating installations where it is planned to use gas, and to correct any faults which are discovered in returns and traps in piping, etc. A minor fault in the layout of the piping system may cause a great deal of trouble.

8. Our experience in servicing the equipment might be of interest:

After the installation has been completed, two inspections are made, and at least two request calls for additional information may be expected.

An analysis of service calls for three years shows:

59% of calls for adjustment of accessory equipment.

39% of calls for further information.

2% of calls involving gas supply.

(To be concluded in July 30th issue)

Selling Gas and Gas Appliances for Domestic Purposes*

George E. Whitwell
General Sales Manager, Philadelphia Company and Affiliated Companies

TO many it may be an extremely novel suggestion that it is necessary at all to consider, as a problem, the selling of gas and gas appliances. The gas business, universally thought of as a public necessity, becomes, in the minds of many, monopolistic. It is assumed that the customers will buy gas without any urging or without any effort on the part of the purveyor of this commodity. Consequently, it is apparently good logic to assume that the public must and will buy domestic appliances for the use of gas.

To my mind there are many fallacies in any train of thought leading to the conclusion that it is unnecessary for the utility to sell its product. In order that we may inquire more deeply into our subject, let us, at the outset, examine the words used in the title of this paper and define them for the purposes of that which follows.

"Selling" to me means more than "order taking" or the mere exchange of a commodity for money. Selling means the stimulation of a desire which theretofore had been latent or non-existent, and, among other things, it implies satisfaction, maximum use of the commodity, safety, efficiency and reasonable cost. Without these characteristics there is no selling. The user merely takes that which the purveyor has to offer and takes only that portion of it which the user thinks he needs.

"Gas" in the Larger Sense

"Gas" is generally thought of as merely an indefinite volume of hydrocarbons and other combustibles in the gaseous form. I like to think of it, however, as being, in addition, these gaseous compounds delivered under uniform conditions so that the maximum benefit may be derived from its utilization. At once, the ideas of pressure, composition and specific gravity enter into the thought of gas. Without this enlarged definition of gas there can be no real selling; we revert to the idea of the user merely taking the product from the seller.

"Gas appliances" may mean anything in which, in some manner, gas can be burned to accomplish a result or a near approach to a result. In this article I would rather consider gas appliances as material things, so constructed, that the user can always accomplish a desired result with the minimum of cost that is commensurate with a proper return to the gas company; with maximum convenience; with the ultimum of safety and in the least possible time.

"Domestic purposes" has too long meant cooking, with some attention paid to water heating, less to proper househeating and little or none to anything else. Let us add to these uses the thought of gas in incineration, in laundry dryers, in refrigeration, both as applied to the preservation of foods and to the cooling of home interiors, and also to the myriad of smaller uses wherever heat is required in the home.

Gas, in the minds of people generally, is of two kinds—natural and manufactured. It may be distributed in either of these forms or in any combinations of the two. As far as its use is concerned, considering this use for the moment apart from cost, it makes very little difference what form gas takes so long as, in any given instance, gas retains practically the same chemical and physical characteristics and is delivered under practically uniform pressures. Expanding this thought, it follows that, if it becomes necessary to change from one condition of uniformity, steps should be taken to make it possible for the customer to use the gas efficiently under the new standard of conditions and that these new conditions, once established, should remain reasonably uniform from hour to hour and from day to day.

Sole Advantage of Natural Gas

The important thing is the selling of a medium composed of heat units which will enable the customer to accomplish a desired result in a manner acceptable to the customer and properly profitable to the gas company. The only advantage that natural gas can have over manufactured gas is that it gives, to communities fortunate enough to possess it, delivered heat units at a lower price.

But lowered price without satisfaction is never an advantage; often it is a disadvantage, and it very frequently, if not always, follows that where gas has been delivered at an extremely low price, satisfaction on the part of the customer has been so entirely lacking that more intensive selling is required than with a gas which, because of the high cost per heat unit, must be aggressively sold if it is to be competitive with other fuels.

The consideration of satisfaction in the use of gas at once relieves those who are connected with the so-called commercial or sales department from the entire responsibility of selling. Others must accept no small share of the responsibility in the selling of the product.

All the selling efforts in the world will not provide the customer with the ability to accomplish the desired result, if the transmission department cannot soon enough repair a line break or finds it is without adequate standby facilities to re-route gas in the time of emergency. The new business department cannot sell if the production department does not adequately provide wells or manufacturing facilities sufficient to give the gas required during the hour of maximum demand without too great diminution in pressure.

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*Read at annual meeting Natural Gas Association of America, Cincinnati, May 9-11, 1927.

Obligation of Distribution Department

Selling aids, such as merchandise stores, attractive windows, home service departments and utilization helps, are of no avail if the distribution department has failed to comprehensively analyze its problem and provide mains of adequate capacity to meet the load at times of severest strain upon its facilities. Newspaper advertising, courteous and efficient salesmen, adequate displays and attractive young ladies, all to extol the advantages of gas, are useless when we consider selling in the broad sense defined above, unless the utilization department has educated architects, contractors, builders, plumbers and heating specialists to install in the homes pipe of sufficient size, with minimum frictional resistance and with adequate tightness of joints, and to install equipment in such manner that the production department's gas of uniform characteristics can be delivered to the customer with the transmission and distribution departments' uniformity of pressure, and the customer may employ it with maximum efficiency.

I am not an idealist, but I believe it is necessary that we recognize the factors in our problem and understand at the outset that the selling of gas is a problem not confined to the ability of a group of men who understand and take advantage of sales psychology and sales methods. It is a problem of the entire personnel of the gas company and involves every member of the organization from the highest executive to the day laborer. An ideal to strive for will help selling; improved selling will bring dividends.

With this understanding of the problem and with this idea of its scope, we come to the consideration of selling as such. It can be divided under the following headings:

1. Price, which, in the gas business, is thought of in terms of rate schedules.
2. Service.
3. Methods of selling, of which one is the sale of the gas appliances.

Generally speaking, it isn't the cost of a fuel that counts; it's the cost of using it. Nevertheless, it is of interest in any study of natural gas to look into this matter of price and review a little the circumstances which have determined costs as they are found today.

Original Procedure in Selling Natural Gas

Natural gas started out, in most cases, with coal and wood as competitors. When gas was first offered to the public coal and wood had been used for cooking and househeating, and coal had been used by industries. In other cases, coke, oil and kerosene were competitors of the new fuel.

It was considered necessary, at first, to price natural gas so that it would cost less than the other principal sources of heat energy. In many localities, flat rates per month of so much per stove or room heated or range or other equipment were charged.

There were no inducements, with flat rates, to purchase economical burners and equipment or to use gas carefully. Therefore, crude burners were installed in appliances designed for other fuels. Gas was wasted. Hazards were developed in the use of gas. Unsatisfactory service was common. A very false impression regarding the real value of natural gas was developed. The regard of communities for their gas companies was far from the best. Serious lack of confidence in the dependability of the supply of gas grew without restraint.

When well productions declined and fields were extended, the necessity arose for price increases. Reasoning that natural gas rates were once lower, the public concluded that gas had become expensive. Having no definite knowledge as to actual relative cost of different sources of heat energy, and instead of comparing the cost of using gas with the cost of using other fuels, it was easiest to compare the existing gas rates with previous gas rates.

While the history of manufactured gas varies in details from that of natural gas, the present generation of gas men has faced a general mistaken idea as to the value of gas for domestic, commercial and industrial uses and also its merits, such as dependability, cleanliness, control, safety and convenience.

It would probably be of little avail to present a long list of tables showing the cost of accomplishing a given piece of work with different fuels, giving effect to efficiency of utilization, excellence of product, labor costs and all of the many factors that enter into the production of a desired article. In any community these costs can be determined comparatively readily, and it is a simple matter to find out just where gas takes its place among the available fuels in the matter of the cost of its use. Furthermore, such considerations largely concern themselves with the use of gas for industrial and commercial purposes, and the factor of cost, while occupying a place of prominence, is not all-important when the domestic field alone is being considered.

Rates an Important Item

The matter of rates, however, is an extremely pertinent consideration and deserves attention, regardless of whether the field is domestic, commercial or industrial; in fact, it is practically impossible to study rate structures for any one class of business without involving considerations affecting other classes of business.

In domestic business the gas industry is handicapped by the prevalence of rates which make 30 to 80 per cent of its accounts unprofitable when a proper analysis is made of the actual cost of serving each individual account. Undoubtedly, there are exceptions to this statement, but from the mass of data that has been collected by the American Gas Association and other similar associations, there is ample authority to demonstrate that a very large share of a gas company's business is unprofitable, and that nearly all of this unprofitable business is in the domestic class.

Slowly, gas companies are beginning to realize

this condition and each year shows additions to the number that are putting into effect rate schedules designed to remedy this difficulty. Such rate schedules are built up from a careful cost analysis which results in the allocation of proper charges against various kinds of business.

There is not opportunity here to discuss in detail either theoretical rate forms or particular rate structures that result from these forms. It should be pointed out, however, that three and sometimes four divisions of cost are recognized in a proper study, and these costs are then incorporated with varying degrees of completeness in the resultant rate structure.

These four divisions of cost are:

1. Production demand cost,
2. Distribution demand cost,
3. Customer cost, and
4. Commodity cost.

Sometimes the first two are incorporated into one known simply as the "demand cost."

Definitions of Various "Costs"

Briefly, "demand cost" is the cost that a company has because of the nature of the use of its product by a customer or because of the demand made by the customer on its facilities. Theoretically, it varies for every customer.

"Customer cost" is approximately the same for every customer and is practically independent of the nature of the customer's use of gas or of the quantity which he uses.

"Commodity cost" is the actual cost to the company of the gas itself and will vary for each customer in direct proportion to the amount of it which that customer uses.

While a true analysis of costs under these divisions will result in the possibility of the formulation of a rate schedule which will eliminate unprofitable customers, the practical difficulties surrounding the application of such a rate structure are very great and few companies have deemed it advisable to actually put into effect so-called three or four part rates. A conspicuous example of the use of such rates, however, is the Doherty organization, well known in the natural gas field.

While strict adherence to theoretical three-part rates involves serious difficulties, the setting up of block rates which recognize, in varying degrees, the actual elements entering into the cost of service is a practical way of solving the problem. The effect of such block rates is to increase the cost to the small user and make such user pay more nearly the share of the cost which he occasions the utility. At the same time, a large user receives a certain share of the benefit which accrues to him because of his larger use of the product.

In this way the large user has to provide less revenue to offset losses caused under a flat rate by the small user, and it is possible for a greater number of profitable customers to be induced to use gas.

With block rates, it is not necessarily true that the small customer does not receive benefit. While the cost of the first unit or units is increased, the cost of succeeding units is decreased sufficiently to enable the domestic customer, who takes full advantage of the rate, to do more actual work at less cost than he could under flat rates using gas for part of his fuel requirements and other fuels for the remainder. The result is of value to both company and customer.

Perhaps no better example of the effect of block rates or rates which recognize the elements of cost in their formulation can be given than that which is found in the electric industry. A typical domestic electric rate is one that provides 8 cents for the first block of current used per month, 5 cents for the second block and 3 cents for the third. Roughly, the first block is designed to cover the use of electricity for some primary purpose, such as light, and yet includes the greater part of the demand and customer costs. The second block induces the customer, through decreased cost per unit, to use electricity for domestic purposes other than light. The third block puts well within the range of the customer the use of electricity for purposes, such as cooking, which were hitherto much too expensive for the great majority of people. Yet a cost analysis from the point of view of the company shows that the business in the second and third blocks is profitable.

(Concluded in July 30th issue)

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PUBLIC UTILITIES AND ADVERTISING

Speech of Frank LeRoy Blanchard at the I. A. A. Convention

ADMITTING that the progress made by the Public Utilities Advertising Association was most encouraging, Frank LeRoy Blanchard, president of the association, in his address before the International Advertising Association at Denver, June 27, said:

"When the Public Utilities Advertising Association was organized five years ago, many of the companies represented were either advertising spasmodically or not at all. Advertising was regarded as an unnecessary expense— a waste of money. I fear that there are still some companies that maintain this attitude, but their number is rapidly diminishing.

"The Public Utilities Advertising Association was organized to bring together those who are engaged in public utility advertising for the purpose of taking counsel together and, through the exchange of experiences and the contribution of ideas, to increase our own efficiency, and through the adoption of better practices to make our advertising more productive. No association can be of practical service unless its members work together in a spirit of co-operation, forgetting for the time being all company rivalries and selfish individual interests.

Leaders in Utility Field Co-operating

"We have in our association many of the leaders in the gas, electric light, electric railway, telephone and other utility companies, who are devoting much time and thought to the problems with which we are confronted. The results of their observations and experiences are made available to all of our members through the Association Bulletin, so ably edited the past year by Henry Obermayer, and through the annual and stated meetings of the association.

"Other factors that have contributed to the increased expenditure in advertising are the rapid increase in the use of gas for house-heating and industrial purposes, the development of iceless refrigeration and the extension of lines of service into new territory in the gas and electric fields.

"The marketing of the securities represented by this huge amount could never have been accomplished within the year had it not been for the aid of advertising. Salesmen alone could not have done it. The utility companies had something to sell and it was necessary that the public be told quickly and thoroughly about the stocks and bonds they had to offer. People cannot be expected to buy what they know nothing about, and the best way to inform them about securities or merchandise is through newspaper advertising. It was advertising, combined with efficient salesmanship, that enabled the companies to secure the capital they needed.

"We have not yet arrived at the point where it has become necessary to establish and maintain permanent headquarters. We have no paid officers, but I hope that by another year our income will become sufficiently large to allow us to pay the secretary a salary, at least on a part-time basis. At present Mr. Obermeyer edits the Bulletin, looks after the correspondence, fills speaking engagements, furnishes items to the newspapers and performs other valuable services for which he receives no recompense whatever except that which comes from a knowledge that he is doing constructive work that benefits not only the members of the association, but also the public utilities with which they are allied.

Mid-Year Meeting Suggested

"I hope the time is not far distant when the Public Utilities Advertising Association will be able to hold a mid-year meeting in some centrally located city which will be easy of access. Twelve months is too long a time between sessions. There are so many subjects that we should like to discuss that it would be profitable to all of us if we could get together more frequently and take them up. Until mid-year conferences are held, it might be advisable, when the January or February meeting of the board of directors is held, to invite such of our members to be present as would care to come. The regular business of the board is not of a secret nature and I can see no need, except on rare occasions, of holding executive sessions. The program, arranged in advance, could include two or more addresses on important subjects by men of prominence in the business and advertising worlds, that would be of value to all our members. Those who reside at a distance may not find it advisable to attend this mid-year meeting of the board, but those living within striking distance would, I feel certain, be glad to avail themselves of the opportunity.

"I believe the day is not far distant when competent advertising men who are connected with great enterprises, like public utilities, will come into their own. It takes a long time for the owners of such properties to appreciate the fact that advertising is as essential to modern business as personal salesmanship, and that those who have become experts in it are entitled to a place in the front rank of the executive staffs of the industries.

"Advertising is no longer to be regarded as a makeshift, a game for gamblers, an adventure in publicity, but rather as a dignified, dependable means for extending markets and making people happier through the introduction of household aids, time-savers and comfort-bestowing merchandise. Every last one of us who is entitled to the name of advertising man should take a new pride in the occupation to which he is devoted and do all he can to make advertising more believable, more resultful and more helpful to the consuming public.

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GAS COMPANIES WILL NEED TWO BILLIONS IN NEXT TEN YEARS

The manufactured gas companies of the United States will need not less than two billion dollars of new capital within the next ten years for equipment and extensions to meet the increasing demands for gas service, according to Harry C. Abell, former president of the American Gas Association and president of the National Power and Light Company. This is an increase of 50 per cent over the present capitalization of the gas utilities, estimated at four billion dollars.

The increasing use of gas for house heating and in industry is the outstanding factor in the need for greater production, according to a statement by the American Gas Association. About 100,000 central-fired gas househeating units are being installed yearly. At present, one-fourth of the country's supply of manufactured gas is consumed in industrial plants.

A recent survey made by the General Federation of Women's Clubs indicates that 52 million people are using gas in their homes, this domestic consumption amounting last year to approximately 350 billion cubic feet.

New York leads all other states in the use of manufactured gas, and had a total consumption in 1926 of more than one hundred billion cubic feet, or nearly one-fourth of the country's total. Gas service is available to 90 per cent of the population of the Empire State, and it is estimated that three-fourths of all the food cooked is prepared on gas ranges.

As The Journal Views It

WILL GAS ELIMINATE THE CELLAR?

With the rapid introduction of gas for house heating there has followed apace a considerable amount of worthwhile comment anent the disposition of the cellar.

There have been suggestions galore concerning the conversion of this architectural appendage. Accordingly whenever gas has been installed for heating with its accompanying cleanly environment we have seen the cellar metamorphose into billiard rooms, play rooms, up-to-date laundries, workrooms for the paterfamilias to exercise his hobby, and what not.

As a matter of fact, however, is it not usually the case that there develops a great deal of waste or unused space in the cellar when gas heating is installed? Billiards has never mustered any excess of popularity, or at least the manufacturers of pool tables would appear to be indulging in a bit of forced expectation if they fancied that house heating by gas will convert us into devotees of the game on a large scale.

It is also somewhat true that play rooms are becoming passe and the paterfamilias doesn't ride near so many hobbies as he used to. More, the large laundries are slowly but surely filling the vacancies caused by a dearth of laundresses, ebon-hued and otherwise, and accordingly there is less laundering being done in the homes.

Hence we might propound the query, even if a bit timidly, why the cellar at all? Not so long ago it was deemed quite necessary that a home include in its complement of rooms a garret or attic. One might with propriety term this period the "trash decade." We are all familiar with the great quantities of worthless furniture, dilapidated hair trunks, maimed toys and other similar impedimenta that cluttered this topmost portion of the house. But as a general thing the attic disappeared and remains in our memory as a place where we stored a lot of stuff, but peculiarly couldn't find a particular item when we needed it the most.

Cellars are an expensive luxury or evil, if you will. With the cost of labor at its present level it amounts to a sizable figure to excavate, cement and wall this part of a residence. Indeed, the interest on the cost of digging and finishing a cellar and its upkeep will pay for no small amount of gas for househeating.

A portion of the space now taken up by a cellar can be used for a garage, and an additional area, not more than ten by ten, can house the gas furnace. Otherwise the balance of the space can be dispensed with.

If the cellar will ever pass into the discard, as has been the experience of the garret, we hold that gas househeating will be the impelling factor.

A SUM OF CONSIDERABLE MAGNITUDE

It has been stated that the manufactured gas companies of the United States will need upwards of two billion dollars of new capital within the next ten years to take care of equipment and extensions necessary to keep pace with the increasing demands for gas service. A sum of considerable magnitude, in our opinion.

Aside from the heartening fact that the spending of this money indicates sound management and a healthy growth of our industry, it should be borne in mind that the disbursement of such a vast sum is by no means a game to be indulged in by amateurs.

It is not much of an undertaking to spend a small amount of money, for the simple reason that it will not command much buying power, and consequently the field of purchasable wares or materials will be materially lessened. Further, any errors in purchasing judgment will be of small moment. But to wisely spend money of large amounts is quite another matter. The purchasing field is larger and more confusing, so to speak, and faulty purchases will result in losses of a quite serious nature.

All of those who will be actively concerned in the disbursement of the two billion dollars in question would do well to bear in mind that theirs is a task that will demand the exercising of sound judgment both from an engineering as well as a management standpoint.

INDUSTRIAL GAS LESSONS

IF IT'S DONE WITH HEAT — YOU CAN DO IT BETTER WITH GAS

Lesson No. 179
Carburetted Blue Gas

THE operating directions for a carburetted blue gas set usually contain a set of rules for inspecting the set. This is an important part of the procedure of carburetted blue gas manufacture, but it is hardly our province here to discuss these rules. At any rate, they can be obtained from the makers of carburetted blue gas apparatus.

Before proceeding to the actual operation of the set it must be mentioned that while the usual arrangement of carburetted blue gas machinery is generator, carburetter and superheater in separate shells, this is not always necessary. Thus the Williamson apparatus combines the carburetter and the superheater in one apparatus which is set on top of the generator and the whole is contained in a single large shell which is divided vertically into two hemicylinders by a brick wall. The generator is charged from side doors and the blue gas enters the carburetter through a long vertical pipe which is external to the shells.

The Twin Carburetted Blue Gas Set

In the twin carburetted blue gas set there are two generators and each of the generators is equipped with a single carburetter. The two generators are operated separately during the blow and the up runs are also made separately, but the down runs are made in unison. The steam is admitted at the top of one carburetter and then it is passed down this machine and down through the fuel bed of the first generator. Then the mixture of steam and partially formed water gas passed up through the bed of the second generator and also up through the second carburetter. The oil used for enriching the blue gas is added at the bottom of the second carburetter. In the next operation the steam is added at the top of the second carburetter, passed down it and through the second generator and thence in the reverse process through the first generator. The object is to provide a double thickness of fuel and to increase thereby the steam decomposition and form more blue gas.

There are other types of combined generator, carburetter and superheater in one or two apparatus or combinations of these, but after all the only really important carburetted blue gas system in this country is the one which uses three separate apparatus and with whose operation we will now concern ourselves.

The operation of the carburetted blue gas set includes of course the preliminary operations of drying out the apparatus, bringing the fire up to heat charging fuel into the generator and cleaning the fire. It must be remembered in operating the carburetted blue gas set that it is necessary not only to bring the fuel bed in the generator up to the proper temperature for the manufacture of blue gas, but the brickwork in the carburetter and the superheater must also be heated up to the correct cracking temperature before operations of gas making can actually commence.

The Blow Run

The carburetter is lighted therefore and sufficient blast is permitted so that the flame burns uniformly and the checkerbrick in the machine is heated up to a red heat. When the top of the checkerbrick is red hot, the amount of blast is increased for the purpose of heating up the remainder of the checkerwork and also the superheater, while avoiding overheating the top of the carburetter.

At the beginning of the blow run the gases contain practically no carbon monoxide from the generator and hence no secondary air is admitted, but as the blow proceeds the presence of carbon monoxide in the gases is indicated by their slight bluish flame and the gas maker then opens his secondary air valve in order to admit air for burning the carbon monoxide. This promotes the complete combustion of the carbon monoxide and insures proper heating up of the checkerbrick in the carburetter and superheater.

After the temperature has reached the proper point in all parts of the apparatus, the machine is ready for gas making. The proper time for starting the make run of the set is something that cannot be accurately told by merely observing the temperature on the pyrometer, but experience teaches that it must start a certain time before the temperature is recorded by the pyrometer, and this means that the blow must be stopped at the proper point.

CERTIFICATES GIVEN TO BRIDES' CLASS MEMBERS

Certificates were awarded to 48 members of the brides' class at its final meeting at the cooking rooms of the Norwich Gas and Electric company on Shetucket Street by Miss Gladys Peckham, home service expert of the department.

Miss Peckham was presented with a gift of money from the very appreciative class who has been under her able instruction. Miss Irene Broadhurst, who has assisted Miss Peckham, was presented with a vanity case. During the evening a plan was discussed for the arranging of a series of 12 lessons to be given the business girls on Monday evening beginning Oct 3. Registrations for the class may be made at this time and 21 have already signed up.

Daintily frosted cakes and fresh fruit punch were served during the evening.

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HOME CANNING

"Eat what you can and what you can't eat can" is a slogan that the gas man may use at this season of the year to good advantage. With markets full of fruits and vegetables the gas man should sell the home manager on the idea of more home canning. Folks the country over are eating more and more green vegetables, and while this habit is the vogue the gas man may profitably push it onward. Give folks what they want, more and more home cooked foods; teach 'em to have more "green stuff" next winter via the oven canning, now. Oven canning may well be demonstrated in the display window.

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TAKE WARNING—CAN!

By Edna M. Mateer

The Illinois Power and Light Corporation, East St. Louis, is taking advantage of the knowledge that folks are eating more fresh fruits and vegetables to exploit the use of the oven heat regulated gas range to can up both fruits and vegetables for home consumption.

As a rule at this season of the year the markets in the Middle West are overflowing with fruits, berries and vegetables, but, due to excessive rains and flood conditions in the whole Mississippi Valley, these things are rather scarce, of an inferior quality and high in price.

It was with this knowledge that Wm. H. Matlack, sales manager for that company, planned his campaign to increase and encourage more home canning and an extended use of the oven heat-regulated gas range. First of all, the main display window in the company's store was converted into a modern kitchen having one of the newest model oven heat regulated gas ranges, a self-acting water heater, a one-piece porcelain sink equipped with running hot and cold water and up-to-the-minute kitchen cabinet and a gas refrigerator.

This done, the personnel of the Home Service Department was strengthened by the addition of Mrs. Degusta Sams, a well and favorably known director of Home Service in one of the local schools.

The next step was to give the fact that folks should eat more home-cooked foods and more freshly home cooked foods—publicity. This was done through paid newspaper advertising, the first advertisement played up these facts and at the same time introduced Mrs. Arabella Combs, director of the company's home service department, and advised the populace of the fact that Mrs. Combs and Mrs. Sams were ready and willing to help all comers with home planning or other home problems without cost.

The kitchen is now in full operation each day—canning and cooking—and is drawing many home

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managers, and if what they say while in the company's store is true, a great many East St. Louisians will enjoy home canned fruits, berries and vegetables during the coming cold months when folks predict they will be very high in the local markets.

"It is planned that the Home Service Department carry on in this manner during the months of July and August, says Matlack, and I feel that if it goes on as it is going now we will have done the people of East St. Louis a good turn and that they will appreciate it." The manner in which we keep down the expense and handle the matter of disposition of foods canned is this: Upon request employees of the company are permitted to have canning done by our Home Service Department if they will provide the sugar, spices, jars and fruits or vegetables to be canned. This not only gives our operators something to demonstrate to the public, but it helps those who are in many ways helping us to render better public service.

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CHICAGO HOME SERVICE ACTIVITIES

No thrifty housewife likes to throw away the fat from roasted meats or fried bacon. Often quantities accumulate. Mrs. Farquhar interested the women of her class greatly when she demonstrated to them how to use this fat in making soap.

A great many women have called since the demonstration, asking for the recipe, and others have told her that they have successfully made the soap. One woman told her she had had grease on hand for over a year, not knowing what to do with it, and since the demonstration had made the soap with excellent results.

Mrs. Farquhar has been contributing regularly household articles to the Uptown Chicago News, and has had a very nice response from the readers, as instanced by this letter:

"I enjoy every word of your articles, written for the Uptown Chicago News. I am a commuter myself, and often think I will plan to come in for some of your classes."

Miss Quinlan, at the Irving Park Home Service, was hostess to the Berteau Dramatic Club and over 300 guests at the flag pageant staged by this club.

"Please extend our thanks to the officials of the company for providing such a delightful place for our activities," wrote the president of the dramatic club. "It was an ideal place to have our pageant, roomy, comfortable and lovely."

The Twilight Baseball League met in the Home Service Auditorium recently for an evening meeting, at which a number of prominent business men in the neighborhood spoke. There were 168 present.

Next fall, from September 7 to October 5, each Wednesday morning, the Parliamentary Law School of the Seventh District of the Illinois Federation of Women's Clubs will hold their classes in the Irving Park Home Service Auditorium. This brings a very representative group of women to Home Service; and is a gratifying contact for Miss Quinlan.

A HOME SERVICE DEPARTMENT FOR EVERY UTILITY COMPANY*

By Frances Lauder,
Director Home Service Department, Battle Creek Gas Company

WHEN a community shelters prosperous, happy homes, who benefits? For one—the utility company. Happy, prosperous homes result only when the homemakers are educated to the needs and benefits of better living conditions: more sanitary homes, with balanced and properly cooked meals.

Educating the homemaker means that the homes are run more efficiently and economically—no matter whether the income is large or small. It means drudgery is eliminated by the use of mechanical appliances doing the hard work instead of the woman in the home or even the hired helpers doing it.

Company's Obligation

If the utility company benefits by having prosperous, healthy, happy homes in the community in which it is located, isn't it up to that company to help create such homes? A utility company has labor-saving appliances to sell; it sells the fuel to operate them; it has the salesmen to sell them, the service men to keep them in repair; but, without a Home Service Department, it has no one to show the homemaker the real needs and advantages of such appliances in the home. Even if the salesmen, without the aid of a Home Service Department, are successful in putting them into the homes, there is no one to show the homemaker how to use these appliances in a really efficient way so that they will save her time, energy and money. For example—how many women do you think buy ranges without automatic heat controls because they know they can bake good cakes and pies in the other kind and do not realize all that can be done with this other type of range? Of course, I know the salesman tells her all about the things she can do with it, but he is only a mere man with no practical experience and what does he know of the real hazards which may arise in baking cakes and pies without watching them? On the other hand, how many women do you think purchase ranges with oven heat controls and use them almost the same way as they would one without it, and her neighbors say: "Weren't you foolish to pay extra for that regulator?"—"I don't believe you can trust them—I wouldn't go off and leave my oven going." What proportion of these women with heat regulated ovens do you think really make these ovens work for them by putting their whole dinner into the oven, setting the heat control at a low temperature and leaving it there all afternoon, thus having a hot meal ready to put on the table when they return at 6 p. m., instead of suggesting that they all pick up a bite to eat downtown as there is "nothing in the house," or, if they

*Read at Annual Meeting Michigan Gas Assn., Mackinac Island, July 5-7, 1927.

don't do that, stop at a delicatessen and pick up a ready-cooked meal.

Dramatizing Ideas

They know the salesman told them they could do this, but "seeing is believing." At the Home Service Department they can see it done! The Home Service Department dramatizes the ideas that are given them by the salesman. It converts a vague, intangible idea into a very definite, vivid, understandable one.

If you admit that these statements are true, aren't you sure that a Home Service Department will, at least, do two things for your company:

(1) Create a need for new and up-to-date appliances.
(2) Use more fuel because women are shown more and better ways of using their appliances.

Of course, these are important services that a Home Service Department will render to a company, but they are not all it will do.

We have said that giving instruction to the purchaser shows her how to get the maximum of efficiency out of her appliances which, of course, encourages her to use it more, thus increasing the economical use of more fuel—but it does more than that—it makes her a real friend of the company. She has found someone who meets her in a friendly way—not just in a business way—speaks to her in her own language of baking, meal planning, feeding the children and any other housekeeping subject. She has found someone who really has a sympathetic understanding of her problems and someone who could possibly help her with her difficulties—for a real Home Service Department has nothing to sell but service and our price is only the good will and kindly feeling of our customers. For this reason the homemaker can ask for advice and service without any feeling of obligating herself to buy something. Finally she gets up her courage to ask why it is that her cookies bake too fast in the front and are barely baked in the back; why her cake falls after she has taken it from the oven. "They never did that when she baked in her old range."

Reluctance of Prospect

When you offer to come to her home to see if you can help her solve these problems, she is usually very grateful but a little reluctant to let you come. It sounds too good to be true—that you would come to her home and show her how to bake. She is either afraid that there is a catch in it somewhere or else, if she is the other type of person (of which there are few) that she is asking too much of the company. However, if you do go, you usually find one or perhaps several of the following things to be the trouble:

(1) Using poor recipes. By that I mean that the proportions of ingredients are not right. There are as many poor as well as good recipes available and many women are not competent to tell which is which, so the range gets blamed for poor results.
(2) Carelessness in preparation—such as inaccurate measuring. Oh, I know you are saying to yourselves: "My mother baked the best cakes, pies, etc., and she never owned a measuring cup and wouldn't have used it if she had"—
but—she measured just the same, with a good, accurate eye gained by long years of practical experience.
But the business girl who marries and starts in housekeeping hasn't got that eye and, what is worse, usually doesn't realize she hasn't it. She is not going to take the time and trouble to get it through experience, either, and why should she, because experience is really a dear teacher, especially when there is a better way of learning.
(3) The oven baking unevenly because the flame in the oven burner needs adjusting or, perhaps, the range may need new linings.
(4) Baking at the wrong temperature, either because the range has no oven heat control and she does not know the degree of heat needed, or if it is a heat regulated oven, for some reason the regulator is out of adjustment and so is not giving accurate results.
Any or all of these troubles a Home Service Worker will quickly see and remedy.

How Troubles Can Be Remedied

(1) By issuing plenty of accurate recipes, giving time and temperature.
(2) By showing that it is just as important to be accurate in your cooking as it is in any other line of science or art—for cooking is both.
(3) By checking up on the workman to see that the burners are properly adjusted.
(4) Checking the oven heat controls to make sure that they are accurate, or else showing the woman the right amount of heat needed for the product she is baking.

For the past four months I have found an average of four homes a week where women were having trouble with their ranges but were not sending in their complaints—just using them and knocking them to their friends. It is often from their friends that I learn of their troubles, although sometimes after a cooking class they will tell me about the difficulties they are having. One woman I know discouraged her friend from buying an oven heat control range because she told her it didn't really work. When checking up on her range I discovered that all the trouble with it was that the flame went out when it reached the given temperature, a matter of only a few minutes work to remedy.

To eliminate many such troubles in the beginning, I think all ranges with regulators should be followed up by the Home Service Worker, the oven control tested and some very definite instructions given on how to operate it. Very often the service man is rushed and does not have the time to test and adjust the heat control accurately, and, again,

he is just a man and doesn't know the real science involved in baking, for, when a man who is connected with the business of manufacturing gas ranges tells you that a difference of 15 degrees makes no difference in baking, how can you expect an ordinary man to feel that it does? I haven't had a chance yet to prove to this man that it does, but I did to a man who works with him, and I hope he told him, but, with the men as well as with the women, I suppose "seeing is believing."

Over-Adjusted Regulator

In one home I visited recently I found the regulator to be over 100 degrees too hot. The family had moved about two years ago and since then she had been having trouble with her baking. She was a quiet, retiring woman and while she knew it must be the range, she never had reported it to the office. Finally she got up enough courage after a cake baking class at the Home Service Department to ask me if I would come over and test her oven regulator—that when she used the same method, time and temperature that I had used, her cakes were burned. Here was a customer dissatisfied for two years when only a very small adjustment was needed. This case has since been duplicated by many others and will be in every city, because the women do not feel that the men can really help them—that it is no doubt the way they operate their ovens that gives them poor results. Oh, I know that to you they say the trouble is with the range, but deep down in their hearts they feel that it is their manipulation of the range which is at fault. Usually they won't call the office and put in their complaints unless they are sure it is something that a man would have to fix.

The trouble, however, is not always with the range—that is often given a black name when it doesn't deserve it. When you can show them tactfully that it is not the fault of the range, you have rendered an equally valuable service both to them and to the company.

One woman that I went to see complained that she could never bake a sponge cake in her new range. It was the same recipe that she had used for years. I went out, we used her recipe and baked a perfect sponge cake. She couldn't see why hers wasn't good—the gas must be hotter sometimes than others. She watched it as carefully as I did except that the telephone rang and the oven might have become a little too hot while she was talking. I heard no more from her for quite a while, until one day she came into the office and I asked her how her oven was baking. Well, she could bake her sponge cakes just fine, but it was impossible to bake a white layer cake in that oven. So again I suggested that I come out and try my luck. When I came I asked her for her recipe. She didn't have one written out—it was one she had used for 25 years, so she thought she knew it. So we began—we started out all right, but toward the end she was using nearly twice as much milk and less flour than my recipe called for so I wasn't surprised that her cake fell when it was taken from the oven. For here was a woman who thought she was measuring with an accurate eye gained by long years of experience when actually, although she, herself, was unconscious of it, her eye had lost its ability to judge the measurement correctly.

These are only a few of the experiences which a Home Service Worker in a utility will have—and were stated just to give you a little more definite idea of the service such a person can render to a company.

Does It Pay?

"Does it pay?" is the question you will ask. Yes, but how do we know it does? How do you know that your other forms of advertising pay? By the steady increase of your business. You can't say that the ads you run in your local papers net you yearly so many dollars, yet you know it pays you to advertise, otherwise you wouldn't do it. In the same way a Home Service Department will bring you returns by indirectly selling more appliances and more fuel. A woman told me the other day that her husband said that they certainly had been having good meals lately, but he guessed they would have to stop because he just paid a gas bill of $7.10. However, it is very seldom that you see such direct returns of your advertising but, if this is happening in one home, you can feel pretty sure that the same thing is going on in several others.

Of course, being a Home Service worker, I have the opportunity of seeing and hearing of many cases where I know that the company has benefited by giving this service to homemakers, but other members of the company who also come in contact with the homemakers are aware of the very definite results which this branch of service is accomplishing.

Just how is the work of the Home Service Department carried on? Well, we do have a tentative program which we follow, and I would like to say right here that if any of you are interested in starting a Home Service Department and I can offer any suggestions, I would be very glad to do so, and I hope you will feel free to ask any questions you may have concerning the work. At present, this is the program we are following in Battle Creek.

Monday—Inquiries; telephone information; personal information at the home or Home Service Department on table setting, serving, cooking; menu planning and special dishes.

Tuesday—Class 2.30 p. m.

Wednesday—Morning: Testing oven regulators; instruction in your home regarding use of regulators and baking. Afternoon: Special lectures at clubs, school, church societies, etc.

Thursday—Class 2.30 p. m.

Friday—General information; class 2.30 p. m.

Saturday—Class 10 a. m. for Campfire Girls.

To sum up, then, the work of this department, there are four benefits which I think will result from it:

(1) Creates a need for new and modern appliances by dramatizing the salesman's talks.
(2) Gives instruction in how to use the appliance to

obtain the maximum of efficiency from it and, as a result, increases a more steady consumption of gas by teaching the value of home-cooked meals from the standpoint of health and economy.

(3) Checking up the appliance to make sure that it is giving satisfactory results to the homemaker.

(4) And above all, making a real friend for the company because the way to make a friend is to be one.

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PROVIDENCE HOME SERVICE DEPARTMENT TELLS HOW TO KEEP COOL

Much of your physical well-being in the hot days before you depends on your state of mind, your clothing and your diet. It is all very well to know how to keep cool, but do you put it into practice?

If you are a housewife, well-planned schedules enable you to do your housework, and much of your cooking, in the early hours of the morning. This prevents a last minute rush.

If you are one of the many who spend the day working in the city, arise early enough to dress leisurely. Do not hurry through breakfast, rush to work, and complete the day by running for your car or train.

Control your temper, be calm, accept things as they come your way. Do not rage and storm when everything goes wrong.

Body comfort has much to do with the state of your mind. Warm and tight clothing produce nervousness, and in time the nervous condition of your body causes your mind to be uneasy and uncomfortable. We are indebted to our present styles for loose clothing of cool silk, linen and cotton materials.

Careful attention to the body is necessary if you are to get the best results from cool clothing. A warm bath is more beneficial than a cold, as cold water closes the pores of the skin and prevents evaporation of perspiration, it is refreshing only for the moment. A daily warm bath is a necessity.

The summer menu should be entirely different from that enjoyed in cooler weather. Cold dishes are more attractive than hot, but if you prefer hot, why not a vegetable platter? Cold meat is more appetizing when made into a loaf; crisp salads of all types are palatable. Easily digested foods are best for every one, as they tax the digestive organs the least. Both vegetables and fruits are excellent summer foods, and are very nourishing. A certain amount of warm food is necessary, however. Soup, of any good canned brand, may be the only hot dish of the meal. Fresh fruits should be used for desserts in place of the pies, puddings and cakes of the winter.

In short, there are three good rules to follow if you would keep cool:

1. Give yourself ample time for everything, so that your mind is calm and collected and not thrown into a chaos by having a dozen things to do at once.

2. Keep your body clean, and wear the right kind of garments.

3. Guard your diet carefully.

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PURCHASING VALUE OF THE DOLLAR

The purchasing value of the dollar as measured by living costs for the American wage earner and other persons of moderate means, which includes the great majority of the population, today stands higher than it has for more than two years past, according to the National Industrial Conference Board. The dollar is now worth, on the basis of present livings costs, 61.1 cents as compared with the pre-war (1914) dollar. It was lowest in July, 1920, when it stood at 48.9 cents.

The purchasing power of the dollar has been thus enhanced by the steady decline in average living costs throughout 1925 and 1926, which last April, however, were still 63.7 per cent higher than they had been in 1914 just before the war. But the average weekly earnings of industrial workers, owing to higher wage rates and more steady employment, at present are more than twice as high as they were in 1914, so that in spite of the higher living cost, the wage earner on the average draws weekly pay of about 34 per cent greater purchasing power than he did just before the war.

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Home Comforts at the Club
After exercise or after the heat of the day there is nothing so refreshing as a shower bath.
The automatic gas water heater provides hot water in any quantity. No effort to obtain, just turn the faucet.
Different type water heaters to suit every requirement are on display at your Gas Office.
Mail This Coupon
New Business Department,
The Brooklyn Union Gas Company,
180 Remsen Street,
Brooklyn, New York.
Please furnish full particulars regarding gas water heating.
Name
Street
City State
Telephone: TRIangle 7500
The Brooklyn Union Gas Company

PROGRESS IN GAS TECHNOLOGY
Domestic and Foreign

REVERSING DIRECTION OF BLOW IN WATER GAS SET

IN a water gas plant with connections for reversing the direction of the blast during the "blow," the air blast is passed successively in both directions through a single generator, carburetter and superheater. The reverse air blast may be moistened to facilitate absorption of sensible heat from the superheater and carburetter, and the resulting

FIG.1.

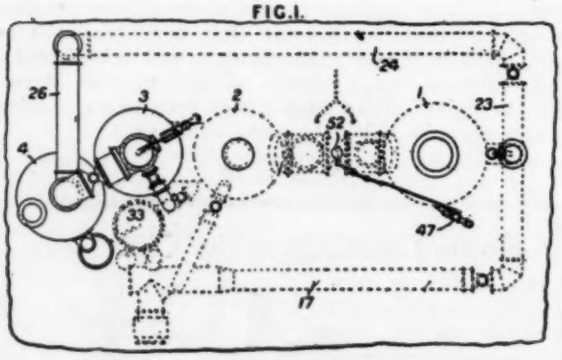

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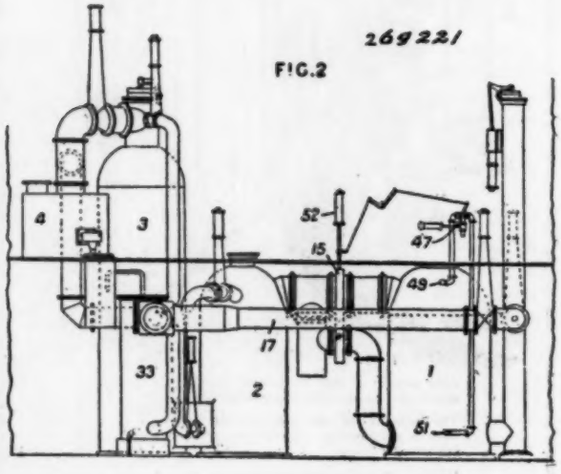
FIG.2



gas may be led to storage. At the end of the reverse "blow" the air blast may be again passed forwards through the set to purge the carburetter and superheater prior to the "run"; and the reverse "blow" may precede the usual forward "blow" to remove carbon which is deposited in the carburetter and the superheater.

During the forward "blow" air from a main 17 enters the generator 1 and the products traverse the carburetter 2 and superheater 3. During the reverse "blow" the air flows through a moistener 33 which is fed with overflow from a wash box 4, down the superheater and up the carburetter into the generator, and the gas is withdrawn through connections 23, 24 and 26 to the wash box. Steam may be admitted to the top of the generator through a three-way valve 47 which is actuated from the automatic control 52 of the hot valve 15. During the "run" steam enters the generator at 51 for the up-run and the water gas is carburetted before reaching the wash box. Steam enters at 49 for the down run, and the water gas is led directly to the wash box. A short up-run without carburetting follows the down-run. British Patent No. 269,221.

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AIR ADMISSION INTO COKE OVENS

IN a coke oven which has regenerators c running longitudinally beneath the ovens, the air for combustion is admitted to the regenerators from the cellar space beneath the oven structure through

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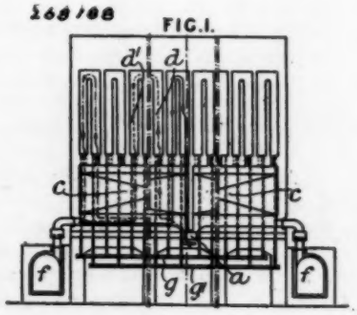
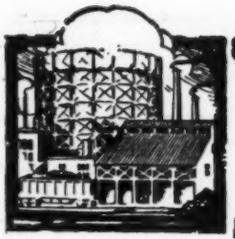
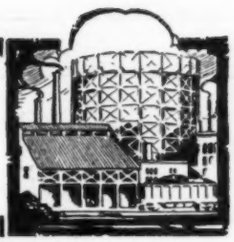
FIG.1.



openings a which are preferably situated on the median line of the battery. In the oven shown in which the two halves of a heating wall are connected to their own regenerator systems and exhaust flues f, the heating wall flues d and d^1 are connected in pairs, and the operation is such that inflow and outflow regenerators alternate along the battery. The pipes g and g^1 supplying gas to the heating flues are also placed in the cellar space beneath the regenerators. British Patent No. 268,188.



NEWS OF THE GAS INDUSTRY



Better Advertising Copy

A Bouquet for the American Gas Association

Irving M. Tuteur, of the McJudkin Advertising Company of Chicago, in an interesting report on "Better Copy" before the Public Utilities Group of the International Advertising Association, at Denver, Colo., called attention to the increment of advertising and then said:

"In the electric and gas fields attention is again directed to the very excellent monthly advertising services available through the Society for Electrical Development and the American Gas Association. Both of these services, which already enjoy substantial circulation among the utilities, provide the best and most economical general advertising assistance available in the industries, in the opinion of the committee, and well deserve the support of companies large and small, not only for the excellence of the material actually provided in the shape of illustrations and mats thereof on al. phases of operation, sales and good-will, but also for their value in providing new ideas for copy and layout."

Southern California Gas Company Starts Work on High Pressure Transmission Line to Carry Natural Gas into Hemet-San Jacinto Valley

Los Angeles.—Initial work has been started by the Southern California Gas Company for the construction of a high-pressure transmission line to carry natural gas into the Hemet-San Jacinto Valley. The Southern California Company will extend a pipe line from Redlands to Beaumont. Here deliveries will be made to Twin Cities Gas Company, which will distribute to the communities of Hemet, San Jacinto, Banning and Beaumont.

Approximately 70 per cent of the cost of this transmission line is being borne by the Southern California Gas Company, and the remainder by the Twin Cities Company. Manufactured gas is now being served in these communities and the substitution will result in the supplying of gas of considerably greater heat and fuel content.

The Southern California Gas Company is also building supplementary transmission lines from its plant in Colton to Loma Linda and to San Bernardino.

New Officers of the Public Utilities Advertising Association

At the Denver convention, June 29, B. J. Mullaney, of Chicago, was elected president of the Public Utilities Advertising Assn. to succeed Frank LeRoy Blanchard of New York; J. Charles Jordan, San Francisco, first vice-president; Donald Mackie, Jackson, Mich., second vice-president; J. M. Barnes, New Orleans, third vice-president; John F. Weedon, Chicago, secretary; Charles W. Person, New York, treasurer.

Directors: Joseph E. Moorehead, Denver; George F. Oxley, New York, and E. Frank Gardiner, Chicago, three-year term; George Ade Davis, Oklahoma City, two years; James Lightbody, Vancouver, B. C., one year.

* * *

Gets a Dozen Franchise Permits

The Public Service Company of Colorado was given certificates by the Public Utilities Commission which gives it the right to exercise franchise rights in the cities of Hillrose, Brighton, Leadville, Aurora, Hooper, Moffat, Brush, Fruita, Ovid, Palisade, Sedgwick and Rifle, Colo.

GAS CO. DIGGING TRENCHES IN ABINGTONS

Service Extended to Chinchilla This Year—Clarks Summit and Clarks Green Next

Scranton. — Employees of the Scranton Gas and Water Company began excavation work at the city line, South Abington township, in preparation for laying the pipes through which gas is to be served residents in the Abingtons.

Company officials expect that work in the village of Chinchilla will be finished this year. Next year it is planned to supply service in Clarks Summit and the following year in Clarks Green.

* * *

Utility Securities Appoints New Vice-President

Robert W. Waite, formerly auditor of the Utility Securities Co., at a meeting of the board of directors on June 17, was elected vice-president and treasurer and director of the Peoples Gas Light & Coke Co.

Mr. Waite began his career in the field of public utility operation and finance when in 1885 he obtained employment with the Chicago Edison Company, predecessor to the Commonwealth Edison Company, as a stenographer. Subsequently he worked up to the position of merchandise credit man.

In 1902 he was elected vice-president and treasurer of the electric light and power properties in New Albany, Ind. In 1912 he returned to Chicago as treasurer of the Midde West Utilities Company. He left that company in 1918, but returned to the public utility field in 1922 as auditor of the Utility Securities Company.

At the same meeting of the board of directors Frank A. Rancine was elected assistant treasurer and George A. Kemp assistant secretary of the Utility Securities Company.

German Coal Tar, Water-Gas Tar and Oil-Gas Tar Distillation

In connection with resumption of collection of statistics of production of local coal and lignite tar distillation plants, it is given that in 1925 Germany had 130 plants distilling coal-tar, water-gas tar and oil-gas tar, 84 of which were in Prussia, 11 in Bavaria, 10 in Saxony, while the others were spread throughout other states of the Reich.

Coal-tar subjected to this processing in 1925 amounted to 1,204,200 tons, of which 956,983 tons was coal-tar originating in the coke plants, 245,007 tons were gas house tar, and only 1,385 tons were oil-gas tar. Furthermore, 73,344 tons of half-fabricates were processed, including 22,466 tons of crude benzols, 23,793 tons of heavy tar oils, 12,771 tons of crude naphthaline, anthracene and other so-called residues, etc. It is then observed that about 80 per cent of the tar raw material originated in the coke plants, while the other 20 per cent was gas-house product. All save some 7,000 tons of imports was of local origin.

The 73,000 tons of half-fabricates also were from domestic sources, 73 per cent of the 22,466 tons of crude benzols being from the coke plants, 24 per cent from gas plants and the remainder from oil-gas plants.

Production included 575,784 tons of pitch, 401,309 tons of heavy coal tar oils (chiefly creosote oil), 132,740 tons of prepared tar, distilled tar and tar varnishes, 40,317 tons of naphthalin, 19,712 tons of benzol, etc.

It is most important to note that figures covering the light-boiling tar-distillates by no means cover total German production, as most of these distillates are produced in the coke plants. Germany's total benzol production in 1925 amounted to 235,000 tons.

Quantitatively, the 576,000 tons of tar pitch for briquet and roof board manufacture was chief in importance, followed by heavy coal tar oils 401,309 tons, although the value of the heavy oils was 38 per cent and tar pitch was 29 per cent of total production. (Trade Commissioner W. T. Daugherty, Berlin.)

Completes 45 Years' Service With Peoples Gas Company

Chicago.—John J. Fitzgerald, of 4614 Irving Park Boulevard, who has been in continuous active employ of the Peoples Gas Light and Coke Company for 45 years, was presented with a jeweled service emblem by officials of the company in the Peoples Gas Building. One hundred and thirty-six other employees received gold emblems for service of five years or more.

Fitzgerald is the first employee to receive such an emblem. Although 65 years of age and eligible for pension, it is his ambition to remain in the employ of the gas company until he has completed a half century of active service. Presentation of the emblem, set with a ruby, a sapphire and a diamond, was made by William G. Rudd, his vice-president, whom Fitzgerald hired as a laborer twenty-two years ago.

Natural Gas "Czar" Named

San Francisco, Cal.—Claude C Brown, gas engineer employed for some years in the Los Angeles office of the State Railroad Commission, was appointed "natural gas administrator for the State of California" by the Commission.

The appointment of Mr. Brown was made upon the request of all of the natural gas companies distributing the fuel in the state and is a step in the direction of allocation of supply, which it is declared is frequently far short of demands.

Mr. Brown will be vested with considerable authority and may order the distribution of the illuminant in any manner that he may see fit in order to take care of oversupplies or shortages. The arrangement was stipulated by the concerns appearing before the commission. They will pay his salary, which was fixed by the commission at $425 a month.

Contracts Received by Gas Machinery Company

Granite City, Ill.—The Illinois Power & Light Corporation, Granite City, has awarded a contract to the Gas Machinery Company of Cleveland, O., for new purifying equipment complete with 20-inch valves and connections.

This purifying equipment will be located on a new piece of ground and ample space will be provided for future extension of the plant.

Independence, Mo. — The Gas Machinery Company has been awarded the contract for machinery to equip a complete new gas works in Independence.

The plant will be located on a new piece of ground and will consist of 8 ft. water gas sets with breeze collectors and auxiliary equipment.

Two new gas holders will be installed, and the gas will be purified by passing through cooling-scrubber equipment, 20 ft. diameter by 12 ft. high, purifiers and auxiliary by-product apparatus.

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Western United Gas Earnings Up

Consolidated earnings of Western United Gas and Electric Company and subsidiaries for the twelve months ended April 30 show gross earnings and other income amounting to $6,858,270.28, as against $6,278,761.88 for the previous year. After deducting for operating expenses, maintenance and taxes, earnings from operations were $3,200,699.28 compared with $2,675,333.19 year before. Net earnings before depreciation, amortization of debt discount and the Federal taxes amounted to $1,373,624.78.

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Oldtown Wants Gas Extension

North Attleboro.—The Oldtown Men's Club has started a campaign for the extension of the gas mains to that village. A committee of which Frank Maxcy is chairman is working on the proposition and they have been in communication with the president of the North Attleboro Gas Light Company.

GAS PLANT CHIEF IS ROY HOFFMAN

Charles Melrose Will Share in Vacancy Left by Death of W. C. Coakley

Spokane, Wash. — Charles Melrose, in charge of industrial fuel sales for the Spokane Gas and Fuel Company, and Roy Hoffman, assistant to the general superintendent, have been named to succeed jointly to the position of general superintendent, made vacant by the death May 26 of Walter C. Coakley. This announcement was made by James L. Stone, manager of the company.

Both Are Trained

Melrose has been with the company ten years and was graduated from Washington State College. He was formerly assistant to Mr. Coakley, later was transferred to the plant at Sedalia, Mo., as plant superintendent, then to Toledo, O., in the industrial fuel department. He was brought back to Spokane following Mr. Coakley's death.

Melrose will be in charge of industrial fuel sales and of the distribution system and will have supervision of the shop department.

Mr. Hoffman has been with the company eight years and was graduated from the University of Colorado. He was assistant to Mr. Coakley at the time of the latter's death. He will have charge of the plant at Erie and Sprague and will supervise the manufacturing end of the business.

Coakley was killed by an explosion of a small sample still with which he was experiment with ammonia liquor, a by-product of the gas plant. At the time of the accident Coakley had almost completed tests for making an ammonia sulphate fertilizer to utilize the ammonia liquor, the market for which was destroyed by the introduction of synthetic ammonia some time ago.

Continue Coakley's Plans

"Ammonia is an important product of the plant," Mr. Stone said, "and Mr. Coakley had about completed his plans for manufacture of the fertilizer. He had progressed to such a stage we plan to continue the tests. Mr. Hoffman will have charge of this work."

Mr. Stone announced that the company would add approximately ten miles of gas mains to its lines within the next year, at an estimated cost of $30,000. During his trip in the east he conferred with officials of the Henry L. Doherty and Cities Service companies, parent organizations of the local firm and their decision was to continue expansion in Spokane where building warranted.

* * *

Gas Company in New Office

Ada, Okla. — Separation of the Ada Natural Gas Company's office from that of the Suburban Power Company, and the opening of a special gas office and shop in the Ada Herald Building was announced by officials of both companies. The change will be effective on and after July 11.

Although the change will inconvenience patrons to the extent of causing them to call at two offices to pay electricity and gas bills, as has been the custom in most other towns, it will result in better service to the town and community, officials pointed out. No dissatisfaction is back of the change, declares P. O. Moore, manager of the power company.

A. J. Storandt has been named manager of the local gas company office and shop, and has men available at once to repair lines and meters, and to make installations and extensions.

Convention Calendar

September

12-16—Pacific Coast Gas Association. Annual convention, Hotel Casa del Ray, Santa Cruz, Cal. Clifford Johnstone, executive secretary, San Francisco, Cal.

CORRECTION

Refrigeration Skit Written by G. W. Keller of National Refrigerating Co.

On page 607, June 18th issue of the American Gas Journal, the following paragraph appears:

"The Refrigerating Skit, 'Selling the Seller,' put on by Mr. J. L. Johnson, sales manager, Providence Gas Light Company, and Mr. A. L. Kebbe, of the Connecticut Power Company, was a great success."

As a matter of fact, this sketch, which was put on at the New England Regional Gas Sales Conference, was staged by Mr. J. L. Johnson and Mr. G. W. Keller.

Mr. Keller, who, incidentally, wrote the skit, is assistant sales manager of the National Refrigerating Company, New Haven, manufacturers of Ice-O-Lator refrigerating units.

* * *

Oklahoma Utilities Improve Gas System

Extensive improvements to the gas distribution system of Bristow are being made by the Oklahoma Utilities Company. Four-inch gas lines are being laid to replace two-inch lines in unpaved alleys in the business district in advance of paving which is to be laid soon. A four-inch belt line is also being completed. This line will encircle the entire city and will be a factor in maintaining even gas pressure. The Oklahoma Utilities Company secures its gas supply from a field seven miles north and another field six miles south of the city.

* * *

M. C. Schneider Appointed Operating Manager for Several Companies

M. C. Schneider, formerly general superintendent of production and distribution for the Equitable Gas Company, has been appointed operating manager for the Equitable Gas Company, the Pittsburgh and West Virginia Gas Company and the Philadelphia Oil Company, subsidiaries of the Philadelphia Company.

Ammonium Sulphate Prices Lowered in Germany

The Nitrogen Syndicate, Berlin, has announced its new schedule of prices for the next fiscal year, states a cable from Trade Commissioner William T. Daugherty, Berlin. The new prices represent a reduction of approximately 5 per cent.

The price per kilo of nitrogen in ammonium sulphate, ammonium sulphate nitrate, potash ammonium nitrate and urea is 85 pfennigs, effective June 1, 1927, increasing gradually in successive months until it reaches a peak price of 95 pfennigs, which price will prevail from February to June, 1928. During the year 1926-27 the scale prices ranged between 90 pfennigs and one mark.

The price per kilo of nitrogen contained in calcium cyanamide and ammonium chloride will range between 78 pfennigs and 88 pfennigs, compared with 82 and 92 pfennigs for calcium cyanamide during last year. Heretofore ammonium chloride was quoted on the same basis as ammonium sulphate. Sodium nitrate and calcium nitrate are quoted on a flat basis of 1.23 marks and 1.13 marks respectively, per kilo of nitrogen content; these prices are not subject to seasonal changes.

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Gas Pipeline Survey Party Establishing Headquarters

Colorado Springs, Colo.—Colorado Springs may be made headquarters for the $22,500,000 pipeline project for conveying natural gas from the Texas field near Amarillo to Denver.

The Interstate Pipeline Company of Denver, which has the contract to lay the pipe if the proposed project is carried out, has established offices in the Colorado Springs National Bank building. Engineers are here and it is said are already engaged in making a preliminary survey.

E. C. McGee, reconnaissance engineer, is in charge of the group. He declined to make any statement other than to say that a survey was being run for a line of some sort.

New Gas Supply Creates Comment

Lockport, N. Y.—Low priced gas in Lockport for home heating—as well as for greater industrial use—that's the talk of the town!

So great has been the interest shown by home owners, who have been making inquiry as to the approximate cost of heating homes from this new gas supply when the line is completed, that a representative of the Union-Sun and Journal interviewed General Manager T. W. Connette of the Lockport Light, Heat & Power Co., in his office recently.

General Manager Connette stated: "Our company expects to have the new gas supply line completed about October 1, and right now we are rushing the work with all possible speed. Already we have completed about one and a fourth miles of the nine and one-half miles of piping which it will take to complete the line."

"For the benefit of the hundreds of home owners who are anxious to learn of the cost of using a gas burner in their furnace—whether it be a hot air, hot water or steam system—as compared to coal, with its dust, ashes and waste, I wish to state that the price will be low enough for home heating."

"How will the price compare with either coal or oil," Mr. Connette was asked. He said: "The price of gas for house heating will be about the same as the cost of oil—not including the additional cost necessary to operate the oil burner, such as electricity to operate the blower motor and the constant use of gas for pilot lights."

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Low-Temperature Tar Report to Be Issued

"Notes on Low Temperature Carbonization in the United Kingdom with Special Reference to Tar Yields" is a special report from U. S. Trade Commissioner Fox, at London. This document is to be mimeographed and will be supplied to interested American firms on application to the Chemical Division of the Bureau.

The Hub of North Texas Gas Distributing Systems

Greenville, Tex.—With new cities being added each month to the ever growing system of gas mains of the Lone Star Natural Gas Co. in this immediate section of the State, Greenville bids fair to be designated as one of the largest and most important distributing centers.

Already a large and modern warehouse has been erected here with supplies being sent out from this city to the many adjacent cities which are becoming consumers of natural gas. Cooper has recently secured its quota of subscribers and the system will soon be extended to that city; meanwhile lines have been placed into Campbell, Commerce, Cumby, Sulphur Springs, Wolfe City and many other cities within a radius of sixty miles of Greenville.

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Gas Executive Tells the Coloradoans a Few Things

James F. Owens, vice-president and general manager of the Oklahoma Gas & Electric Company, of Oklahoma City, who was one of the principal speakers at the International Advertising Association convention, in Denver June 26-29, says to the folks of Colorado that theirs is a wonderful state, but it needs a state chamber of commerce to advertise it; that it never has been advertised as it should be, and then he tells what the Oklahomans have done.

"We started page advertising in the Saturday Evening Post, and that brought the response. That made every resident of Oklahoma throw out his chest with pride. From our first page in the Saturday Evening Post we received 1,800 replies from 43 states in the Union, Canada, Mexico, Spain, Italy and Germany. We sent out booklets on these requests and in turn received more than 1,000 specific replies from people seeking investment in lands, city property, cotton fields, industrial plants, creameries, laundries and a host of other things," and then he added: "We have not the slightest trouble in obtaining $400,000 for advertising.